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THE CONFLICTS THAT SHAPED THE GREATEST NATION ON EARTH

AMERICA AT WAR



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200
YEARS OF
CONFLICT**



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SECOND EDITION

AMERICAN REVOLUTION ■ CIVIL WAR ■ VIETNAM ■ WORLD WAR II



WELCOME TO AMERICA AT WAR

Born out of conflict during the War of Independence with Great Britain, the United States has gone from colony to global superpower in little over 230 years. In America at War, we'll explore how the USA has been defined by warfare, its most iconic engagements and the weapons and technology it's used throughout history. We start by looking at the conflicts that shaped the nation's formation and early years – from the American Revolution to the Civil War. From here we'll uncover how the United States established itself on the global stage, playing a key role in the 20th century's two world wars and going head-to-head with the USSR during the Cold War. As a world superpower the US has become a target for terrorism, which led to the attacks of 9/11. We'll look at the War on Terror that followed and the US's conflicts in the Middle East, some of which still continue to this day.



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AMERICA AT WAR

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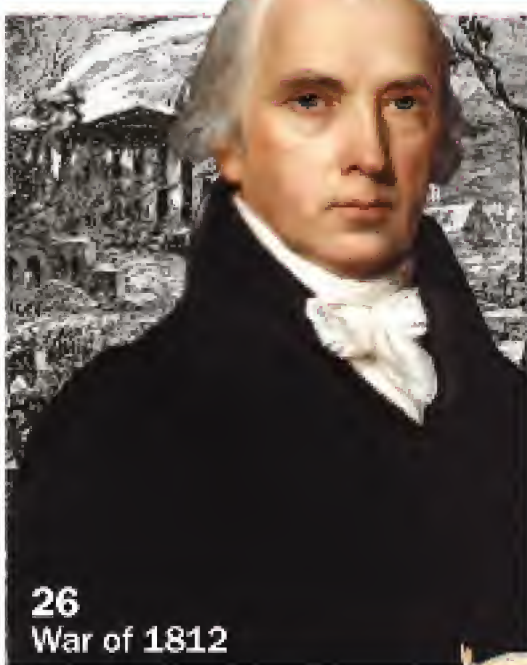


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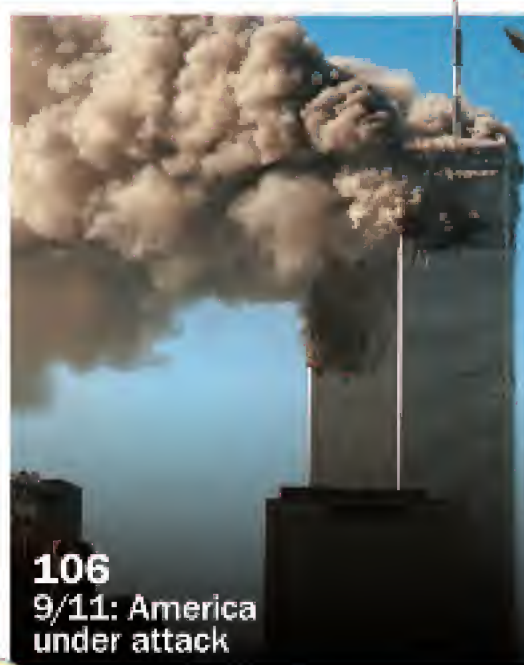
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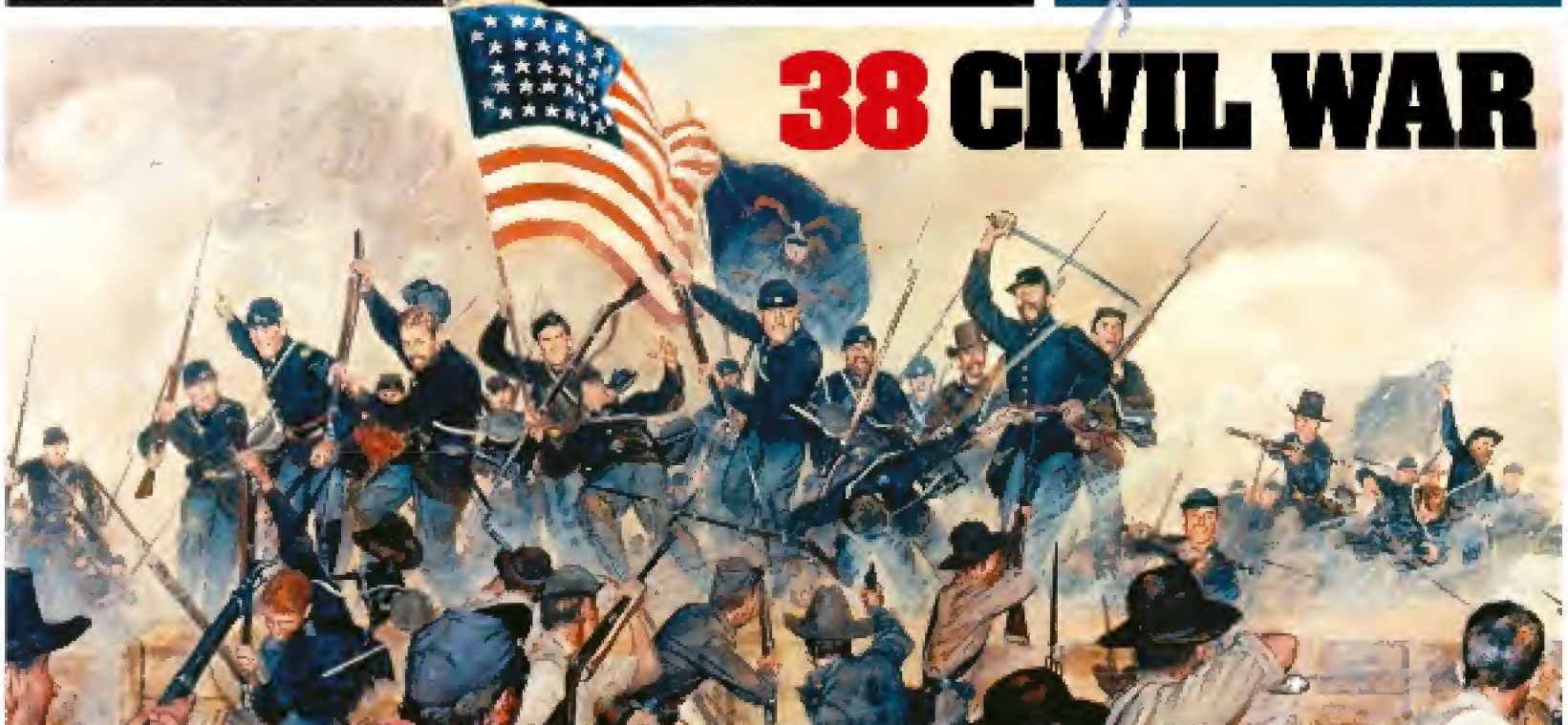
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THE AMERICAN REVOLUTION

Disputes over the imposition of taxes and an emerging national identity erupted in armed conflict between Britain and its North American colonies



"THE WAR HAD BEEN WON ON THE BACKS OF BRITISH TAXPAYERS, AND THE COLONISTS HAD BUILT A PROSPEROUS ECONOMY. THEREFORE, MPS REASONED THAT THE COLONIES SHOULD SHARE THE EXPENSES"

American military commander (and future US President) General George Washington (center) leads the Continental Army in the Battle of Princeton, New Jersey, January 3, 1777.



Nearly two centuries after the first permanent English settlement in North America had been established at Jamestown, Virginia, in 1607, an amazing and perhaps completely unexpected phenomenon had developed in the 13 colonies where Great Britain had invested enormous treasure, nurtured and defended its people and now expected similar support.

Although succeeding generations had been born and raised in North America, the colonists still considered themselves subjects of the British crown. However, separated from the mother country by the expanse of the Atlantic Ocean, they were a diverse people, particularly as exploration and settlement of the North American continent spread inexorably westward. A strong and diverse colonial economy developed as well – industrial and maritime in the north and agrarian in the south – while the middle colonists were known as craftsmen, farmers and merchants.

By 1650, trade between Great Britain and the colonies flourished, and in London Parliament passed the first of the Navigation Acts to protect the trade, preventing other countries from muscling in on the lucrative venture. Regardless, these statutes were only loosely enforced as smugglers and traders profited handsomely in the colonies, where the prosperous enjoyed substantial wealth and considerable latitude to govern themselves. Inherent in such circumstances, a fresh identity – distinctly American – began to emerge.

Throughout the 17th and 18th centuries the great powers of Europe had waged wars for preeminence and empire. Inevitably, these had spilled into North America, with the principals of Britain, France and Spain competing for land and fortune. Between 1689 and 1755 at least four major wars had been fought. In 1763, Britain had prevailed in the French and Indian War, an extension of the Seven Years' War in Europe, snuffing out 150 years of French colonisation in the Western Hemisphere.

The victory, however, was won at a heavy price. The cost had nearly doubled the British national debt. Because they were still British subjects, the colonists were entitled to the protection of the British Army and the Royal Navy, and a military presence was still required in the colonies to protect against hostile Native American tribes and any further incursions from the French and Spanish. The war had been won on the backs of British taxpayers, and the colonists had built a prosperous economy; therefore, Members of Parliament reasoned that the inhabitants of the colonies that stretched from Georgia in the south through the Carolinas and north to New England should share the expenses of maintenance, administration and their own defence.

In 1765, Parliament enacted its first substantive tax on the colonies. The Stamp Act levied a tax on all printed documents from newspapers to wills and playing cards. Amid loud objections, including a convention of representatives from nine colonies to denounce the act and a boycott of goods imported from Britain, Parliament repealed the Stamp Act the following year but warned of future measures with the Declaratory Act, asserting that



London reserved the right to tax its colonies. In 1767, Charles Townshend, Chancellor of the Exchequer, introduced the Townshend Acts, which levied taxes on goods such as lead, paper, paint, glass and tea. Again the colonists howled and slashed their volume of imports, reducing commerce with Britain by half in 1769 and bruising an already shaky British economy.

The British dissolved the Virginia House of Burgesses and the New York and Massachusetts assemblies and began sending troops to the colonies in response to the unrest, specifically to enforce the collection of the Townshend duties. The presence of redcoats in Boston was an affront, one made worse since Parliament had passed the Quartering Act in 1765, requiring the colonists to house and feed the British soldiers.

Angry mobs took to the streets to taunt and jeer at the redcoats. On 5 March 1770, one such incident erupted in violence. Several colonists were shot dead, and the encounter

was dubbed the Boston Massacre. Parliament repealed all the Townshend taxes with the exception of one – the tax on tea. Still, its presence remained a serious issue as colonial propagandists used the blood of the Boston Massacre to rouse anti-British sentiment. Then, on 16 December 1773, in response to another measure called the Tea Act, members of the Sons of Liberty, a clandestine rebel group, dressed as Native Americans and dumped tea from British cargo ships into Boston harbour.

The incident became known as the Boston Tea Party, and in response Parliament closed the port of Boston and passed the Coercive Acts, also known as the Intolerable Acts, to punish the colony of Massachusetts. The harsh measures galvanised resistance, and other colonies soon acted by coming to the economic aid of Massachusetts.

By the spring of 1775, the British Government had pronounced that Massachusetts was in rebellion. The provisional

government defied the British, calling for the formation of militia in the event of hostilities. On 19 April, approximately 700 British soldiers, led by Lt Col Francis Smith, were ordered to seize the Massachusetts Militia's cache of weapons, powder and ammunition at Concord outside Boston. Colonial authorities were aware of the move, and riders had raised the alarm during the predawn hours.

Just as the Sun was rising, a small band of 78 militiamen confronted the British troops en route to Concord. A British officer bellowed, "Disperse, ye rebels! I say disperse! Lay down your arms, you damned rebels!" Then, in a flash, shots were fired. Eight militiamen lay dead, and one British soldier sustained a slight knee injury. The British pressed on toward Concord, where they divided into companies to conduct their search. A party of 400 militiamen confronted 100 soldiers at the North Bridge, and a brisk exchange of gunfire occurred in the late morning. The British gathered and began a steady withdrawal to Boston, under fire the entire march, reinforcements bolstering their numbers to 1,700 as they eventually made their way to safety. During the first day of the American Revolution, 49 militiamen were killed and 39 wounded, while the British lost 73 dead and 174 wounded. War had come.

By the morning of 20 April a full 15,000 militiamen had assembled to surround

"A PARTY OF 400 MILITIAMEN CONFRONTED 100 SOLDIERS AT NORTH BRIDGE, AND A BRISK EXCHANGE OF GUNFIRE OCCURRED IN THE LAST MORNING. THE BRITISH BEGAN A STEADY WITHDRAWAL TO BOSTON, UNDER FIRE THE ENTIRE MARCH"

After sacking his subordinate, General Charles Lee, George Washington rallies his troops at Monmouth and avoids a disastrous defeat



Boston on three sides. The colonial forces continued to grow, and the Second Continental Congress authorised the formation of the Continental Army on 14 June 1775, with George Washington, an experienced militia officer from Virginia, as its commander. Three days later General Thomas Gage, commander of the British garrison in Boston, now 6,000 strong, made his first offensive move to break the siege.

To strengthen his position, Gage sent 1,500 troops under Major General William Howe to seize the heights of Breed's Hill and Bunker Hill on the Charlestown Peninsula. Aware of the British intent via contacts in Boston, the colonists had already moved at least 1,200 men under General Israel Putnam and Colonel William Prescott to the heights and prepared defensive positions. The British grenadiers and light infantry deployed in long lines, four men deep. As they marched up the slope of Breed's Hill they made easy targets for the militiamen behind their makeshift barricades, a rail fence helping to steady the aim of their muskets. British soldiers fell in heaps, and a second attempt met a similar fate.

Howe called for reinforcements, and a third assault drove the militia from the summit of Breed's Hill as their ammunition supply was exhausted. Hand-to-hand fighting occurred, and the withdrawal from Breed's Hill compelled the



Dressed as Native Americans, the Sons of Liberty dump tea into Boston harbour during the famous Boston Tea Party of 1773

defenders of Bunker Hill to retire as well. It was a Pyrrhic victory for the British as casualties were appalling, with 226 killed and 828 wounded, while the rebels lost 115 dead and 305 wounded. The victors did not follow up with a pursuit and exploit the capture of the heights.

The so-called Battle of Bunker Hill was a harbinger of the difficult fighting that lay ahead as American militia fought British regulars. General Henry Clinton lamented that Bunker Hill was "...a dear bought victory, another such would have ruined us".

Meanwhile, Washington had not been idle. In May, Ethan Allen and his Green Mountain Boys had seized Fort Ticonderoga at the southern end of Lake Champlain. Washington ordered the artillery captured there to be relocated to Dorchester Heights and other high ground around Boston. The movement, supervised by young Henry Knox, later chief of artillery for the Continental Army, was arduous but successful. By early 1776 these guns threatened British supply lines into Boston. General Howe realised his precarious position and evacuated the city.

War begins on Lexington Green as Massachusetts militiamen confront British soldiers marching toward Concord to seize munitions stores



George Washington crosses the Delaware River on Christmas Day in 1776



THE WORLD TURNED UPSIDE DOWN

The British surrender at Yorktown was a bitter pill for the proud army that had previously seemed invincible in the southern colonies

On 19 October 1781, the opposing forces at Yorktown gathered in a meadow near the village, the victorious American and French ranks flanking the dirt road along which the British and Hessian troops marched to lay down their arms. General Cornwallis was mortified with the defeat and feigned illness, choosing not to attend the ceremonies. Instead, he sent his sword with his subordinate, General Charles O'Hara.

As the British and Hessian soldiers marched down the surrender road, their band struck up the children's nursery tune *The World Turned Upside Down*. Indeed it had. The story goes that as O'Hara approached the victors

he first tried to surrender to the French commander, Comte de Rochambeau, who refused to accept the sword. Rochambeau nodded toward General George Washington, who also refused and pointed O'Hara to General Benjamin Lincoln, who had been humiliated during his own surrender at Charleston the previous year when the British required that his army's colours remain cased.

Lincoln received the sword, and as the British troops surrendered many of them hurled their rifles to the ground. Their disgust is evident today in the broken stocks that were recovered from the field and are displayed in the museum at the battlefield visitors' centre.

Within weeks of the early victory Congress adopted the Declaration of Independence on 4 July 1776. However, the British were far from finished. Washington hurried his army of roughly 19,000 southwest to New York, where the city commanded a vital harbour that might serve the British well if it fell into their hands. General Howe regrouped and sailed his army from Halifax, Nova Scotia, to Staten Island. As his force grew to 32,000, Howe outflanked the Continental Army, causing much of Washington's command to flee the field during the Battle of Long Island on 27 August. Washington evacuated his defensive positions at Brooklyn Heights, and further defeats at White Plains and Fort Mifflin compelled him to retreat across New Jersey and into Pennsylvania. Howe's troops consolidated control of New York and the surrounding area in late September.

The defeats shook the Colonists' hopes. As the British established outposts across central New Jersey and garrisoned them with Hessian mercenary troops, Howe went into winter quarters in New York. Washington brought his battered army to relative safety, but enlistments were expiring and desertions were high – its combat effectiveness was rapidly eroding. Undaunted, Washington recruited new troops and received some supplies while his scattered divisions were reunited. In the midst of grim circumstances, he planned a bold stroke. If successful it would deliver a significant morale boost and possibly initiate a reversal of fortune.

On the evening of 25 December, Washington and his army began crossing the icy, windswept Delaware River. Early the next morning, the Continental army surprised the Hessian garrison at Trenton, New Jersey, killing 22, wounding 83 and capturing up to 900 for the loss of two killed and four wounded. The Colonists also captured stores of ammunition and other supplies. The daring attack re-

British General Charles O'Hara offers the sword of his commanding officer, General Cornwallis, to General Benjamin Lincoln at Yorktown



Continental soldiers under Alexander Hamilton storm Redoubt No. 10 at Yorktown during the siege that effectively ended the American Revolution



“BURGOYNE FELL BACK TO SARATOGA, BUT THE OPPOSING FORCE HAD GROWN TO NEARLY THREE TIMES THE SIZE OF HIS ARMY. ON 17 OCTOBER HE RELUCTANTLY SURRENDERED”

energised the army and breathed new life into a revolutionary cause that had faced defeat.

Within the week Washington had eased past a British army under the command of Lord Charles Cornwallis sent to destroy him at Trenton and pounded the enemy garrison at Princeton for a second straight victory. In just two weeks the pattern of the war had changed, at least for a time, and the Continental army went into winter quarters at Morristown, New Jersey. The length of the war and the stubbornness of the rebel resistance was already beginning to weigh heavily on a strained British command structure.

With the coming of spring, the inevitable renewal of the British offensive was set in motion. This time a large army under General John Burgoyne was to make a major thrust into the Hudson River Valley of New York while other forces converged, wiping out any resistance and severing New England from the rest of the rebellious colonies. Burgoyne recaptured Fort Ticonderoga in July, but days later his extended supply lines were failing to sustain an army of 8,000 men. Burgoyne detached a Hessian force to forage the countryside, but these troops ran into a strong Continental contingent at Bennington, Vermont, leaving 200 dead and 700 prisoners as they fled the field.

Burgoyne had counted on General Howe to conform to the strategic plan, but Howe decided instead to strike into Pennsylvania against Washington and seize Philadelphia. Meanwhile, the main American army in the north, under the command of General Horatio Gates, occupied strong positions at Bemis Heights and attacked Burgoyne, who had just crossed the Hudson River, at Freeman's Farm on 19 September 1777. The British lost 600 killed and wounded and Burgoyne was isolated. On 7 October he hurled his army at Gates on Bemis Heights. Future traitor Benedict Arnold led the decisive charge that broke the British and forced their retirement.

Burgoyne fell back to Saratoga, but the opposing force had grown to nearly three times the size of his battered army. On 17 October he reluctantly surrendered. British losses during the abortive Saratoga campaign totalled 440 killed, 695 wounded and 8,222 captured. The Colonists had lost 90 killed and 240 wounded, but their victory at Saratoga shocked the world and would prove to be a turning point.

News of their catastrophic defeat stunned the British public and Parliament while bolstering the efforts of elderly American statesman Benjamin Franklin, dispatched to Paris in late 1776 to court French support for

the insurrection. Franklin charmed and cajoled the French, securing a treaty of friendship on 6 February 1778, and a declaration of war against Britain four months later. Spain soon joined in, and Britain was once again embroiled in a global conflict. France later sent troops and naval forces to aid the Colonists, playing a major role in their eventual victory.

While Burgoyne had failed miserably, Howe defeated Washington with a classic flanking manoeuvre at Brandywine Creek in Pennsylvania and marched into Philadelphia. Washington attempted to halt the British advance at Germantown but was repulsed. For Howe, it was too soon to contemplate that his occupation of the American capital held little hope of success since his unwillingness to assist Burgoyne in New York had resulted in the loss of an entire army.

Still, as the winter of 1777–78 set in the British were warm in Philadelphia. Washington's army, always on the brink of starvation and with many soldiers shoeless, wintered grimly at Valley Forge. Only the force of personality of the commander-in-chief held the army together as hunger and disease took its devastating toll.

Several foreign-born leaders contributed to the revolutionary cause, including the Marquis de Lafayette of France, Poles Casimir Pulaski and Tadeusz Kościuszko, and the Prussian Baron von Steuben, who drilled Continental soldiers tirelessly during the terrible Valley Forge winter. By the spring of 1778, Steuben had cobbled together a more disciplined, cohesive fighting force that could continue the war for independence.



The American frigate *Bonhomme Richard*, commanded by John Paul Jones, catches fire during the battle with the British frigate *Serapis*



NAVAL WARFARE IN THE REVOLUTION

Through the course of the Revolutionary War the Royal Navy held a firm grip on the colonies, restricting commerce

For most of the Revolutionary War the British Royal Navy maintained a crippling blockade of American ports, stifling the flow of precious materials needed badly for the Continental Army to continue the conflict. British warships chased blockade runners and engaged vessels of the fledgling American navy, often getting the best of the rebels with superior firepower and tactics.

On two occasions, though, the Royal Navy lost the upper hand. On 23 September 1779, Captain John Paul Jones, commanding the old frigate *Bonhomme Richard*, engaged the British frigate *Serapis* in the North Sea off Flamborough Head near the coast of Yorkshire. When the British captain inquired as to whether Jones had surrendered, the upstart replied, "I have not yet begun to fight!" The slogan remains a favoured motto in the modern United States Navy. Jones went on to subdue his adversary in the epic battle.

The second occurrence had far greater consequences. The failure of Admiral Graves at the Battle of the Clouds sealed the fate of the British army at Yorktown and left General Cornwallis with little alternative but to surrender. Had Graves been victorious the decisive siege may well have been lifted and the arrival of additional British troops from New York might have changed the course of the war and ultimately history.

"ALTHOUGH THE REVOLUTION DID NOT CONCLUDE WITH VICTORY AT YORKTOWN, THE OUTCOME SEEMED INEVITABLE. OUTCRY IN BRITAIN RESULTED IN THE FALL OF THE GOVERNMENT"

With the renewed campaigning season, General Clinton, now in command of British forces in America, was ordered to abandon Philadelphia and move north to support positions in New Jersey while protecting the lodgment in New York City. Washington saw an opportunity to strike the British rear guard on 28 June, but he chose poorly when he selected his subordinate General Charles Lee to lead an attack at Monmouth, New Jersey. Lee ordered an advance without an overall plan, and piecemeal attacks were beaten back with severe losses. Enraged, Washington rode into the thick of the fight, sacked Lee on the spot and fought Clinton to a standstill. Both armies withdrew to lick their wounds, Washington to White Plains and Clinton into New York City.

Three years of fighting had been inconclusive. The war in the north ground to a stalemate. In London, British officers debated a new strategy. Looking south, they saw renewed prospects for success. Loyalist sympathies were strong there, weather conditions were favourable for extensive land campaigns, and American military strength was believed minimal.

In the autumn of 1778 a strong British force sailed from New York and easily captured the major southern port of Savannah, Georgia, on

29 December. A combined attack by French and American troops aimed at ejecting the British met with disaster in September 1779, and in the wake of the victory Clinton embarked on a major offensive, which ultimately decided the outcome of the American Revolution.

Clinton brought the balance of his army south to the vicinity of Charleston, South Carolina, the largest city in the region. American General Benjamin Lincoln had made the tactical error of concentrating his army at Charleston and allowing Clinton to land on his flanks and besiege the city. For six weeks the British tightened the noose around Charleston, and on 12 May, his supply lines severed and with no prospect of relief, Lincoln surrendered an army of nearly 4,000 men. The surrender proceedings were deliberately intended to humiliate Lincoln and his commanders.

With Savannah and Charleston in hand, the British controlled South Carolina and Georgia and were poised to strike northward through the Carolinas and into Virginia. Clinton returned to New York and left the remainder of the field operations with Cornwallis, who kept the winning streak alive with a thorough defeat of the Continental troops under General Gates at Camden, South Carolina. For a time the



General John Burgoyne surrenders British forces to the Continental Army under General Horatio Gates at Saratoga in October 1777



General George Washington acknowledges a soldier on guard during the winter at Valley Forge

immediate headache confronting Cornwallis was the continuing harassment of irregular militia under commanders such as Francis Marion, nicknamed 'the swamp fox'. The British juggernaut in the south appeared unstoppable.

An overconfident Cornwallis, however, suffered a setback at King's Mountain in early October as American frontiersmen routed a mixed force of Loyalists and British troops on the border between the Carolinas. Washington lost confidence in Gates as a commander and dispatched General Nathaniel Greene to take his place. Greene was fortunate to have one of the finest tacticians of the war by his side. With Cornwallis fixed on Greene, General Daniel Morgan raided British supply centres and on 17 January 1781, thrashed a 1,000-man British force under Colonel Banastre Tarleton at Cowpens, South Carolina, in perhaps the war's best-executed setpiece battle.

An enraged Cornwallis then pursued Morgan while Greene combined his forces and retired into North Carolina, leading the British on a pursuit all the way to southern Virginia. Greene made good his escape through swamps and across rain-swollen rivers before gathering strength and turning on Cornwallis at Guilford Courthouse, North Carolina, in mid-March. Although British artillery won the day, the Americans inflicted heavy casualties on Cornwallis, who lost over a quarter of his men.

The groundswell of Loyalist support that Cornwallis had counted on failed to materialise, and he withdrew his weary army to the Atlantic Coast at Wilmington, North Carolina, before

turning northward into Virginia to join other British troops in the spring of 1781 as his command grew to 7,000. Frequent raids and the procurement of supplies from Virginia farmsteads temporarily stabilised the situation, but soon enough another threat loomed.

Renewed resistance from Continental troops under General Anthony Wayne, widely known as 'Mad Anthony', and the 24-year-old Marquis de Lafayette, was troubling, and Cornwallis made the fateful decision to retire to Yorktown, a small village on the banks of the York River in Tidewater, Virginia, a few miles upstream from the entrance to Chesapeake Bay, the narrows of Cape Henry and Cape Charles, and the sea.

Cornwallis hoped to secure a seaborne line of supply and that Clinton would come to his aid from New York. With reinforcements the British might turn the tide of the war. Instead, Cornwallis' open door became a prison cell.

Washington acted decisively when he learned that Cornwallis was ensconced at Yorktown. The French commitment to the war of independence was substantial. Along with his own army, Washington had been reinforced with 5,000 French troops led by the Comte de Rochambeau. A planned assault on Clinton in New York was shelved, Washington and Rochambeau instead deciding to march towards Yorktown.

Meanwhile, a British fleet commanded by Admiral Thomas Graves sailed south from Sandy Hook, New Jersey, to confront a French fleet under the Comte de Grasse. Washington hoped to lay siege to Yorktown from the land

while the French fleet prevented Graves from forcing passage at the Virginia Capes and rescuing Cornwallis at Yorktown.

De Grasse won the race to the Capes and landed more French troops in late August. Graves arrived three days later only to be defeated at the naval Battle of the Capes on 5 September 1781. The seaward door had slammed shut. Washington and Rochambeau arrived at Yorktown in early October, and the siege began in earnest on the 9th. Artillery pounded the British, siege lines were dug ever closer, and two important defensive positions, Redoubts 9 and 10, were captured. An attempt to escape across the York River to Gloucester failed, and Cornwallis finally grasped the stark reality of defeat. On 17 October the British surrendered more than 7,500 troops.

Although the American Revolution did not immediately conclude with the stunning victory at Yorktown, the outcome seemed inevitable. A growing outcry in Britain resulted in the fall of the government, which was replaced with one that was willing to discuss peace.

Negotiations began in the summer of 1782, and with the conclusion of Britain's differences with France and Spain, the path to peace lay open. On 3 September 1783, representatives of Great Britain and the United States signed the Treaty of Paris, formally ending eight years of conflict. On 25 November, nearly three months after the peace treaty was signed, the last British soldiers in the former colonies boarded ships in New York Harbour and sailed for home.





The superior numbers of Lakota and Cheyenne encamped along the Little Bighorn River overran five companies of the 7th Cavalry

WORDS: WILLIAM E. WELSH

FIGHT FOR SURVIVAL

Native Americans fought desperately to retain their way of life in the face of encroachment onto their lands by white settlers

The Indian Wars in the United States of America consisted of many raids and ambushes: major clashes were few and far between. In the former, the Native American warriors were able to even the odds, but in the latter they found themselves outgunned by a foe that possessed far greater resources both in manpower and equipment. These conflicts stretched over the course of nearly three centuries, from the earliest time that European colonists arrived in America to the final decade of the 19th century.

The Native American tribes were for the most part warrior societies, with tribes fighting their neighbours for land and resources before the Europeans arrived. A major shift occurred in the way of life of the tribes of the Great Plains when they obtained horses. Spanish explorers of the 16th century brought horses to North America, and the Spaniards subsequently settling northern Mexico also had horses, some of which escaped and roamed wild throughout the southwest. The Southern Plains tribes obtained horses from wild herds and also from raids into Spanish territory in the modern state of New Mexico. By the mid-18th century, the tribes of the arid southwest and Southern Plains possessed horses, and soon afterwards the tribes of the Northern Plains had them too.

The acquisition of horses revolutionised the lives of these tribes, enabling them to conduct long-range strikes and overpower neighbouring tribes that lacked horses. Although Native Americans traditionally fought with bow and arrow, tomahawks, hatchets and knives, they soon began to obtain firearms as gifts, as well as through trading and raids.

The Indian Wars can loosely be thought of as falling into several periods that overlap

considerably depending on the cause, location and participants in the conflict. Thus, the conflicts of the 17th and 18th centuries were an attempt by the Native Americans in the east to resist white colonial settlement. In the mid-19th century white Americans embraced the doctrine of Manifest Destiny; that is, the quest to expand across the continent and settle the lands west of the Mississippi River. The flood of migrants into US territories west of the Mississippi River sparked numerous conflicts.

The tribes of North America increasingly faced a desperate struggle for survival throughout the 19th century, during which the US Government sought to force them to live on reservations established on poor-quality land. The proud natives resisted for as long as they possibly could, but one by one they all eventually succumbed to the military might of the US Army.

“THE NATIVE AMERICAN TRIBES WERE FOR THE MOST PART WARRIOR SOCIETIES, WITH TRIBES FIGHTING THEIR NEIGHBOURS FOR LAND AND RESOURCES BEFORE THE EUROPEANS ARRIVED. A MAJOR SHIFT OCCURRED WHEN THE TRIBES OBTAINED HORSES”

Clash of worlds

European colonists clashed with Native Americans throughout the American colonies in the 17th and 18th centuries. These so-called wars of resistance first flared up in Virginia in three separate Anglo-Powhatan Wars between 1610 and 1646 as the Powhatan Tribe sought to wipe out the colonists on the Virginia Peninsula. Unable to defeat the colonists militarily, the Powhatans entered into treaties in which they agreed to live on reservations.

Several significant clashes occurred in the Great Lakes Region and the Northwest Territory between the Treaty of Paris in 1763 (by which the English took control of Canada from the French) and the War of 1812. All three involved charismatic chiefs who were able to assemble confederacies of Native American tribes with which to fight their foe.

The first of these was Pontiac's War. The conflict began with Ottawa Chief Pontiac's powerful army destroying nearly a dozen British forts in the Great Lakes Region. The British then scored an impressive victory over his army at Brushy Run in August 1763 when 500 Highlanders smashed a Native American force besieging Fort Pitt. With the war sapping their resources in Colonial America, the British

signed a treaty with Pontiac in order to secure a much-needed end to hostilities.

The gun smoke had hardly settled from the Revolutionary War when the second key conflict in the Northwest Territory began. The decade-long Northwest Indian War erupted in 1785, pitting the fledgling US Army against the Western Confederacy. The tribes, which received aid from the British, won a number of victories under Miami Chief Little Turtle in the early 1790s. The most notable victory of the Western Confederacy occurred at the Battle of the Wabash on 4 November 1791, when Little Turtle launched a surprise attack at dawn on the American encampment on the banks of the Wabash River. In the desperate clash most of Maj Gen Arthur St Clair's army was destroyed. The Americans evened the score three years later when Revolutionary War hero General 'Mad Anthony' Wayne defeated a combined Native American-British force at the Battle of Fallen Timbers in 1794.

The third significant war that unfolded in the Great Lakes Region was set in motion by Shawnee Chief Tecumseh's agitation against white settlement. Tecumseh preached throughout the trans-Appalachia region against the expansion of white settlers from America

into tribal lands. While Tecumseh was away on such a mission in 1811, Maj Gen William Henry defeated Tecumseh's younger brother, Tenskwatawa, at the Battle of Tippecanoe in November of that year. Tecumseh sought aid from the British but was eventually defeated and slain by an American army led by Harrison at the Battle of the Thames in October 1813.

Maj Gen Andrew Jackson, a hero of the War of 1812 and an experienced fighter of Native American tribes, such as the Creeks and Seminoles in the South, became the seventh US president in 1829. Jackson moved to remove all Native Americans east of the Mississippi River and resettle them on the far side of the water. In 1830 he signed into law the Indian Removal Act of 1830 by which the tribes were forcibly relocated from the South to reservations in the Indian Territory west of the Mississippi in what is modern-day Oklahoma.

The tribes of the South were forced on a long trek from their native lands over the so-called Trail of Tears, with thousands perishing en route. It would set a precedent and foreshadow the relocation and removal that future generations of Americans would perpetrate against the Native American peoples who lived west of the Mississippi River.



This image is thought to show the Potawatomi, a Native American people of the upper Mississippi River and Western Great Lakes region.



A group from the North American Comanche Indian tribe discuss matters with representatives of the United States Government, some of them from the military, 19th century.

The Comanche Wars (South Plains)

The Comanches that controlled the Southern Plains had the distinction of being the most warlike of the Native American tribes of the western United States. The Comanches were allies with the Kiowa, Arapaho and Southern Cheyenne. In battle they skillfully wielded nine-foot lances and could fire six arrows in the time it took an enemy soldier to load his smoothbore musket.

At the outset of the 19th century the Comanches numbered about 30,000 in 12 loosely related groups that were splintered into as many as 35 different bands with chieftains. Although the Comanches raided south into Mexico, they became increasingly hostile to white Anglo-American settlers as a result of creation of the Republic of Texas in 1836.

The Comanches regularly raided Texan settlements. One such raid against a local settlement known as Fort Parker on 19 May 1836, had a profound influence on the Comanche nation in the years that followed. 300 Comanches swept down on the settlement, killing the men and carrying off horses, cattle, as well as women and children as captives. Among the captives was nine-year-old Cynthia Ann Parker. Raised by the Comanche, she married Chief Peta Nocona of the Quahadi band. Their son, Quanah Parker, would grow up to be the leader of the Comanche resistance in the 1870s.

One of the most famous events in the annals of the Comanche Wars was the Council House fight that occurred during a parlay in Austin on 19 March 1840. When the Comanches failed

to bring white hostages to turn over, the Texans shot 35 of the Comanche delegates and took another 30 prisoner. In retaliation, Chief Buffalo Hump led 1,000 warriors on a deep strike into Texas that was known as the Great Raid. The Comanches pillaged the towns of Victoria and Linville on 6–7 August, carrying off a great deal of plunder.

After Texas became a state in 1845, the US Army constructed a string of forts along a 400-mile stretch in Texas that divided the white settlements of the east from the Comanche-controlled lands in the west. Frequent patrols helped curtail Comanche raids. Because the US Army found itself stretched thin in Texas, the Texans created a paramilitary organisation known as the Texas Rangers to maintain law and order and fight the Comanches.

Beginning in the 1840s, the US Cavalry and Texas Rangers were increasingly equipped with repeating Colt revolvers and breech-loading carbines that enabled them to stay in the saddle during a firefight. At the Battle of Antelope Hills in 1858, a force of about 100 Texas rangers armed with Colt revolvers killed 76 Comanches along the Canadian River at the cost of only two rangers.

The Medicine Lodge Treaty of 1867 granted the Comanches and their allies exclusive rights to buffalo hunting north between the Arkansas and Cimarron rivers. However, the arrival of large numbers of white buffalo hunters threatened their existence. In response to the threat, the Comanches began attacking parties of buffalo hunters and trading posts where the buffalo were processed and shipped north to the railroad in Kansas for distribution

throughout the country. Following a bloody raid by Comanches and Kiowa on a US Army wagon train on 18 May 1871, in which the warriors killed the majority of the wagon drivers, the US Army redoubled its efforts to force the Comanches onto reservations. It fell to Quanah Parker to lead the resistance. Parker's nemesis was Ranald Mackenzie, the veteran commander of the 4th US Cavalry based at Fort Richardson. Mackenzie's aim was to cripple the Comanches' ability to wage war. The ensuing Red River War of 1874–1875 saw overwhelming force brought to bear against Parker's Quahadi Comanches. By that time the Comanche nation had shrunk to a fraction of its original size, with 2,000 Comanche living on the reservation and 1,000 'hostiles' led by Chief Parker operating in the rugged mesa of northwest Texas.

Five columns of US cavalry and infantry converged on the Comanches and their allies. The combined strength of the remaining Comanches and their allies living off the reservation amounted to only 800 warriors. The cavalry pursued the Comanches into their hiding places in the Staked Plain, a rugged tableland in northwestern Texas. In September 1874 Mackenzie's 600 troopers located a handful of Comanche encampments in Palo Duro Canyon. Parker's men fought a rearguard action that enabled their families to escape, but Mackenzie captured their 1,400 horses. He kept some and slaughtered the rest. The loss of their horses compelled the Comanches to submit once and for all to living on the Comanche-Kiowa reservation in the Indian Territory, which is now the state of Oklahoma.

The Sioux Wars (North Plains)

The Sioux were not a single tribe but actually several related peoples of the same linguistic family who fell into three subgroups: the easternmost Santee Dakota, the central Yankton Nakota and the westernmost Teton Lakota. The Lakota consisted of seven bands: Oglala, Brulé, Miniconjou, Hunkpapa, Sihasapa, Oohenunpa and Itazipcho. The Lakota, who were closely allied with the Northern Cheyenne, dominated the northern Great Plains, and four of the five major conflicts known collectively as the Sioux Wars concerned them. The five major wars between the Sioux and the US Army were the First Sioux War of 1854–1856, the Dakota War of 1862, the Red Cloud's War of 1866–1868, the Great Sioux War of 1876, and the Ghost Dance War of 1890–1891.

The First Sioux War erupted in the wake of the Grattan Massacre of August 1854. When a Lakota warrior of the Brulé band killed a cow belonging to a Mormon wagon train, Lieutenant John Grattan attempted to arrest the man by force when negotiations failed to compel Chief Conquering Bear to turn the warrior over to authorities. When Grattan ordered his men to fire with howitzers and rifles into the lodges of the Lakota, 200 warriors counterattacked, killing the 29 soldiers. The war dragged on with raids and counter-raids, with the US Army ultimately prevailing.

Unlike the nomadic Lakotas, the Dakotas were farmers. In 1851 they signed over 24 million acres to the US Government in return for the promise of sizeable annuities. Nearly a decade later, the Dakotas found themselves squeezed onto two small reservations with little compensation. On the verge of starvation, the Dakotas rebelled in August 1862.

Under the leadership of Chief Little Crow, the Dakotas began massacring white settlers living in towns and farms along the Minnesota River. In September, former governor Henry Hastings Sibley led an army composed of 1,500 militiamen against the Dakotas. Of the 2,000 Dakota warriors captured, 100 were sentenced to hang. At the last minute, President Abraham Lincoln commuted the sentences of all but 38.

Red Cloud's War four years later was a reaction by the Lakotas to the creation of the Bozeman Trail, a spur of the Oregon Trail that led to newly discovered gold mines in Montana. The Lakotas were incensed because the Bozeman Trail cut through their hunting grounds in the Powder River region of the Wyoming Territory. With the federal government preoccupied with building the first transcontinental railroad, federal officials ultimately negotiated a treaty favourable to the Lakota. A key term of the treaty was that the US Army agreed to abandon three forts along the Bozeman Trail.

Following a reconnaissance mission through the Black Hills in 1874 that led to the discovery of gold in the region's streams and rivers, miners arrived in large numbers to pan for gold even though the land was part of the Great Sioux Reservation. Efforts by the US Government to force the Lakota to sell the Black Hills failed, and the Lakota prepared to defend themselves against a major offensive by the US Army designed to subjugate them.

BATTLE OF LITTLE BIGHORN (25–26 JUNE 1876)

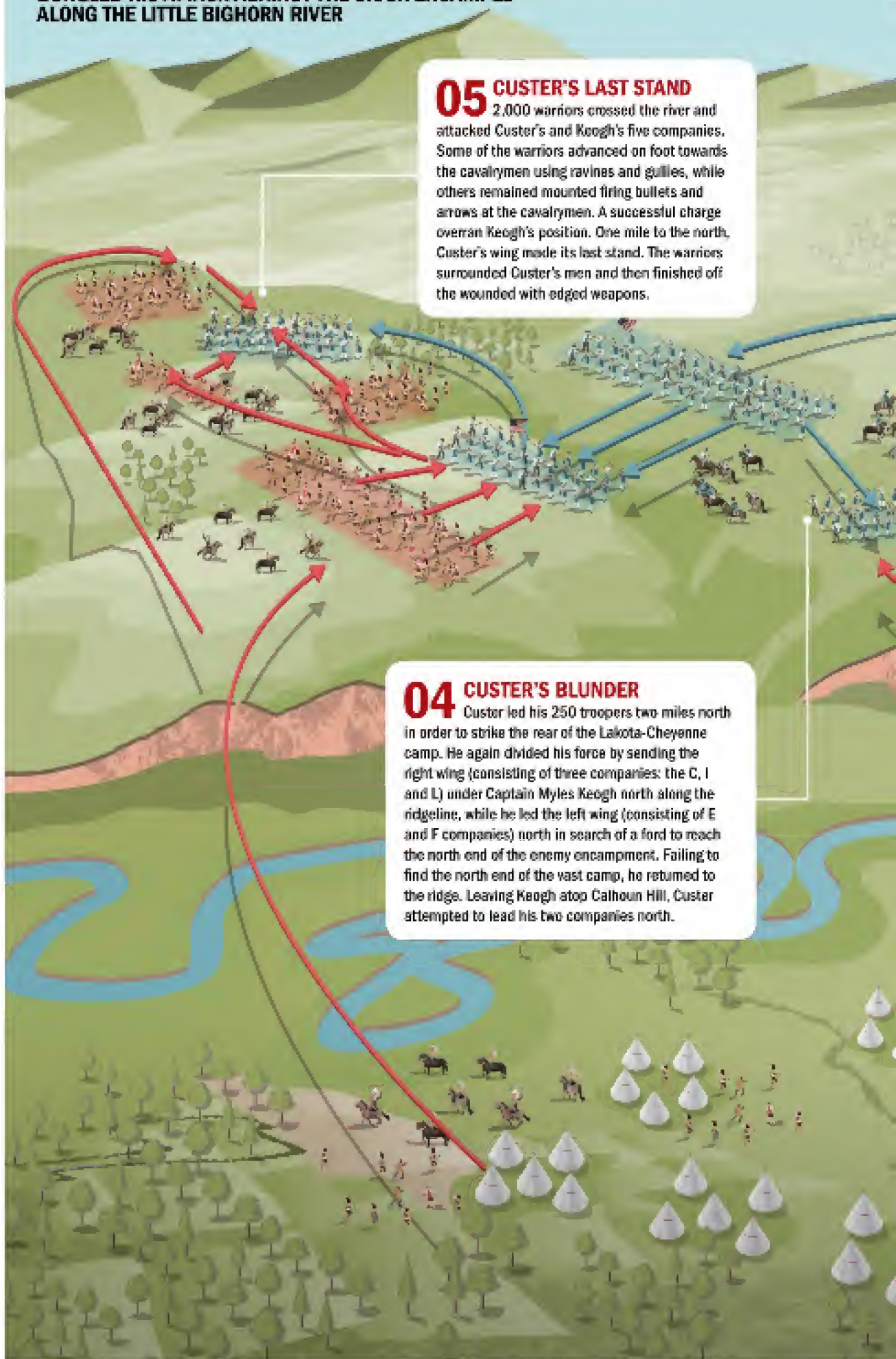
EXPECTING AN EASY VICTORY, LT COL GEORGE CUSTER BUNGLED HIS ATTACK AGAINST THE SIOUX ENCAMPED ALONG THE LITTLE BIGHORN RIVER

05 CUSTER'S LAST STAND

2,000 warriors crossed the river and attacked Custer's and Keogh's five companies. Some of the warriors advanced on foot towards the cavalrymen using ravines and gullies, while others remained mounted firing bullets and arrows at the cavalrymen. A successful charge overran Keogh's position. One mile to the north, Custer's wing made its last stand. The warriors surrounded Custer's men and then finished off the wounded with edged weapons.

04 CUSTER'S BLUNDER

Custer led his 250 troopers two miles north in order to strike the rear of the Lakota-Cheyenne camp. He again divided his force by sending the right wing (consisting of three companies: the C, I and L) under Captain Myles Keogh north along the ridgeline, while he led the left wing (consisting of E and F companies) north in search of a ford to reach the north end of the enemy encampment. Failing to find the north end of the vast camp, he returned to the ridge. Leaving Keogh atop Calhoun Hill, Custer attempted to lead his two companies north.



01 DIVISION INTO THREE BATTALIONS

Seventh Cavalry Regiment commander Lt Col George Armstrong Custer divided his 12 companies into three battalions. He ordered Major Marcus Reno to take three companies (A, G, and M) and attack the encampment on the valley floor from the south. Custer took five companies to strike the enemy rear from the east. He ordered Captain Frederick Benteen to take three companies (D, H and K) and block the enemy's retreat by moving around it to the west. Captain Thomas McDougall guarded the pack train with Company B.

06 RENO'S STAND

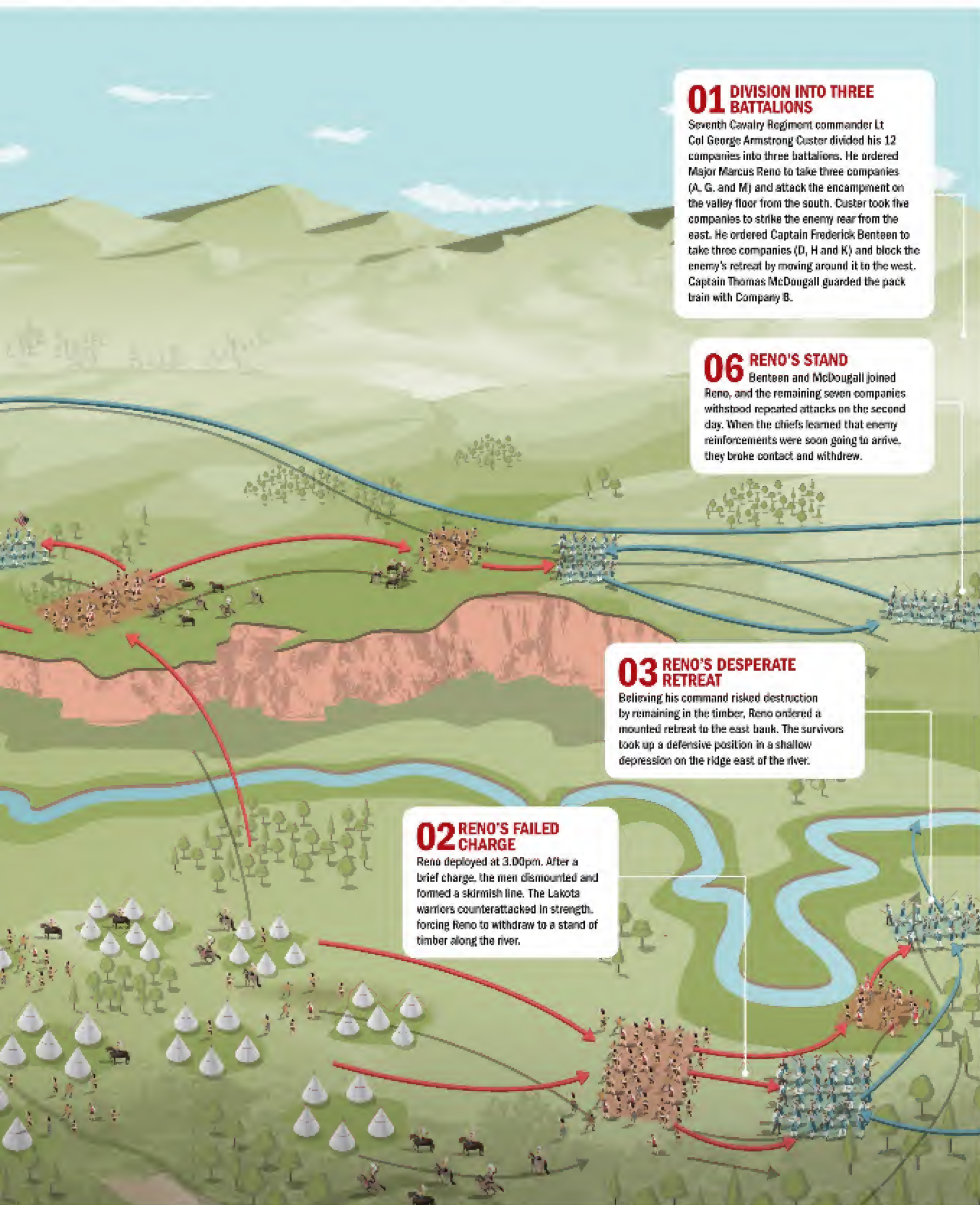
Benteen and McDougall joined Reno, and the remaining seven companies withstood repeated attacks on the second day. When the chiefs learned that enemy reinforcements were soon going to arrive, they broke contact and withdrew.

03 RENO'S DESPERATE RETREAT

Believing his command risked destruction by remaining in the timber, Reno ordered a mounted retreat to the east bank. The survivors took up a defensive position in a shallow depression on the ridge east of the river.

02 RENO'S FAILED CHARGE

Reno deployed at 3.00pm. After a brief charge, the men dismounted and formed a skirmish line. The Lakota warriors counterattacked in strength, forcing Reno to withdraw to a stand of timber along the river.



Maj Gen Phil Sheridan, the commander of US Army forces in that region of the country, devised a multi-pronged campaign against the non-reservation Lakota and Cheyenne who travelled back and forth through the Dakota, Wyoming and Montana territories. In 1876, three columns converged on the Lakota-Cheyenne forces encamped south of the Yellowstone River in the Montana Territory. They had orders to attack Lakota and Cheyenne villages, burn their food stores and destroy their pony herds.

The Lakotas won a significant victory against General George Crook's army at Rosebud Creek on 17 June. Before the end of the month, Sitting Bull's Lakotas won a major victory over Lt Col George Custer's 7th Cavalry at the Battle of Little Bighorn in which Custer was slain and five cavalry companies wiped out. After the battle the Lakota and Cheyenne people drifted east towards the Great Sioux Reservation. Determined to exact revenge, the US Army columns followed closely behind them.

Once inside the Dakota Territory, Crook's vanguard under Captain Anson Mills launched a surprise dawn attack against a Miniconjou Lakota band on 9 September. The cavalrymen charged into the village firing their repeating Colt carbines and pistols. While Chief American Horse and his warriors fought from a protected position in front of a cave, Crook's main force blocked 600 Oglala and Hunkpapa followers under Sitting Bull and Crazy Horse in a nearby encampment from coming to their assistance. The battle ended in a US victory.

In January 1877, Brig Gen Nelson Miles, commander of the US 5th Infantry, attacked a force of Sioux and Cheyenne at the Battle of Wolf Mountain. Taking up a defensive position, Miles' troops used their breech-loading rifles to repulse repeated charges by the screaming warriors. That same month Sitting Bull led his followers into Canada. Meanwhile, Crazy Horse and 900 Lakotas surrendered on 6 May to reservation authorities. Four years later Sitting Bull led his people back into the United States to live on the reservation. Crazy Horse was shot on 5 September when authorities tried to arrest him for allegedly disturbing the peace.

Meanwhile, the US Government began to methodically carve the Great Sioux Reservation into smaller reservations, which had names such as Standing Rock, Cheyenne Ridge and Pine Ridge. One of the most disgraceful massacres by the US Army during the Indian Wars occurred at Wounded Knee Creek on the Pine Ridge Reservation during the month-long Ghost Dance War. The Ghost Dance originated with the Northern Paiutes and spread to tribes in the Great Basin and Great Plains. Ghost Dance believers held that whites would one day disappear and Native Americans would be able to live as they had before the whites arrived.

Sitting Bull was accidentally killed when reservation police tried to arrest him on 15 December 1890. Two weeks after that incident, a bloody melee erupted when troopers of the 7th Cavalry tried to disarm members of two Lakota bands engaged in the ghost dance. Of the 350 Lakota warriors, women and children, 150 were killed and 51 wounded compared to 25 soldiers killed and 39 wounded. Wounded Knee was the final chapter in the Sioux Wars.

The Apache Wars (Southwest)

Living in the arid climate of the American southwest, the Apaches exhibited cunning skills as raiders. A skilled Apache could draw quickly enough to keep eight arrows in flight at the same time. When planning a raid or ambush, the Apaches carefully plotted paths of retreat beforehand. One of their hallmarks was that after striking a target in a raid they would scatter in multiple directions to thwart pursuit and then reunite at a predetermined location.

The US Army's 35-year intermittent war against the Apaches in the New Mexico Territory stemmed from an 1861 incident in which an overzealous low-ranking army officer became embroiled in a dispute with Apache Chief Cochise of the Chiricahua band. A rancher falsely accused Cochise's warriors of theft and kidnapping. When Cochise met with Lt Charles Bascom to inform him that the Tonto band, not the Chiricahuas, had committed the crimes, Bascom tried unsuccessfully to arrest him.

Although Cochise escaped, Bascom took other members of his party into custody. As the matter escalated, both sides executed their hostages. The Bascom Affair made the US Government aware that it needed to secure a key corridor through the mountains known as Apache Pass on the travel route connecting Texas and California. To control the route, the government built Fort Bowie next to the pass. In addition, the government began moving the various Apache bands onto reservations throughout the New Mexico Territory. One of the most squalid reservations was the San Carlos Reservation on barren flats along the Gila River. The Apaches found life on the disease-ridden reservation intolerable.

The most famous of the Apache chiefs was Geronimo of the Chiricahua band. A cunning tactician, Geronimo escaped from the San Carlos Reservation on three separate occasions. War broke out when the US Army sought to clamp down on medicine man Nakaidoklini, who prophesied that dead warriors would return to assist the Apaches in overthrowing their white oppressors. When troopers of the 6th Cavalry seized Nakaidoklini at Cibecue Creek on 29 August 1881, the Apaches attacked in an attempt to free him. During the fighting, Nakaidoklini was slain.

Outraged by the American's missteps regarding Nakaidoklini, Geronimo led 74 warriors into the Sierra Madre Mountains of Mexico. For two years they raided across the border into the United States with impunity. Geronimo's warriors plundered wagon trains to get arms and ammunition and ranches to get horses and food.

With the assistance of Apache scouts, General George Crook led an expedition into Mexico in 1882 in pursuit of Geronimo. In a parlay with Crook, Geronimo agreed to surrender, but on the journey back to San Carlos Reservation he managed to escape his captors. The embarrassing incident resulted in Crook's dismissal. The US Army gave his successor, Brig Gen Nelson Miles, 5,000 troops with which to try and capture Geronimo again. The Apache chief surrendered to Miles on 4 September 1886.

10 GREAT BATTLES

US ARMY UNITS ARMED WITH REPEATING RIFLES ENJOYED A SIGNIFICANT ADVANTAGE AGAINST NATIVE AMERICANS IN THE FINAL BATTLES OF THE INDIAN WARS

● Adobe Walls

Colonel Christopher 'Kit' Carson set out with 472 men to punish Comanche raiders in the Texas Panhandle by attacking their winter camp. Facing 1,200 warriors, Carson used his howitzers to break up repeated charges by the enemy.

1864

View of Adobe Walls battlefield



● Wagon Box Fight

A strong force of Lakota attacked a work party on 7 August 1867, outside Fort Kearny in the Wyoming Territory. Captain James Powell ordered his men to construct a field fort from wagons, logs and sandbags. Armed with repeating rifles, they inflicted 180 casualties on the attackers while suffering only eight casualties in a savage five-hour fight.

1867

1858

● Rush Springs

Captain Earl van Dorn led 200 troopers of the crack 2nd US Cavalry in an unprovoked surprise attack against a Comanche camp in the heart of Comanche country on 1 October 1858. The troopers attacked at dawn killing men, women and children. The Comanches suffered 58 casualties and the US Cavalry lost 20 men.

1858

● Fetterman Fight

In a clash on the Bozeman Trail on 21 December 1866, Captain William Fetterman, under orders to protect troops constructing Fort Kearny on the Bozeman Trail, was baited into pursuing a force of mounted Sioux raiders under Crazy Horse. The Sioux surrounded and destroyed his 79 soldiers.

1866

● Hayfield Fight

21 soldiers and nine civilians manning a defensive perimeter in a hay field near Fort CF Smith on the Bozeman Trail in the Montana Territory used breech-loading Springfield Model 1866 rifles to repulse several hundred Lakota and Cheyenne warriors in a fierce firefight on 1 August 1867.

1867



Wagon Box Fight site, near Fort Phil Kearney



The Sioux charging Colonel Royall's detachment of cavalry, 17 June 1876



Chief Roman Nose taunts the US soldiers as a group of spectators on horseback cheer him on.

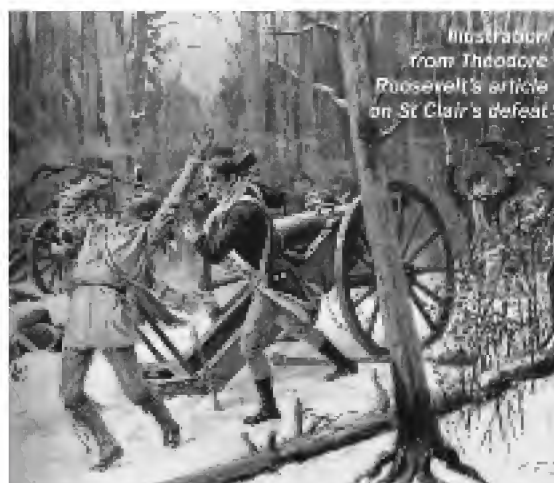


Illustration from Theodore Roosevelt's article on St. Clair's defeat.

The Nez Perce War (Northwest)

Concurrent with the final victories over the Lakota Sioux, the US Army found itself outfoxed for several months by Chief Joseph, the leader of the Wallowa band of the Nez Perce tribe, in one of the most extraordinary military campaigns of the Indian Wars.

Although the Nez Perce initially received through the Treaty of Walla Walla in 1855 a sizable reservation that included their homeland in eastern Oregon, the discovery of gold in the Black Hills of their lands doomed them just as it had the Lakota. A new treaty in 1863 obtained under fraudulent conditions reduced the Nez Perce reservation lands to one-tenth of their original size. The first treaty had already caused a rift among the Nez Perce peoples. One group abided by the treaty, while the other did not recognise it.

Brig Gen Oliver O Howard issued an ultimatum to the anti-treaty Nez Perce that they relocate to the Lapwai reservation in the Idaho Territory or suffer the consequences. The five anti-treaty bands of the Nez Perce concentrated on 3 June 1877, at Tolo Lake in Idaho. Some of the more militant Nez Perce killed 18 civilians on the Salmon River in mid-June, prompting Howard to send in the cavalry. On 17 June, the Nez Perce defeated a force of 130 troops under Captain David Perry that included more than a dozen Nez Perce scouts.

Thereafter, Chief Joseph led approximately 800 warriors, women and children on a 1,630-mile trek east through the rugged terrain of the Idaho, Wyoming and Montana territories in which over the course of 107 days they fought 17 skirmishes and battles with various forces of the US Army attempting to defeat them.

The Nez Perce, who were trying to join Lakota Chief Sitting Bull in Canada, were finally stopped 30 miles from the Canadian border at Bear Paw Mountain on 30 September by a combined arms force of 600 infantry, cavalry and artillery under Colonel Nelson Miles. In his surrender speech on 5 October, Chief Joseph spoke words of his weariness of fighting and the deep sadness he felt in seeing his people killed. "From where the Sun now stands I will fight no more forever," he said.

In a nod to their humaneness (they refrained from scalping) and the sophistication of their tactics, General of the Army William T Sherman had rare praise for Chief Joseph and his warriors. The Nez Perce "displayed a courage and skill that elicited universal praise," Sherman said, noting that they had employed sophisticated tactics during their fighting march such as advance and rear guards, skirmish lines and field fortifications.

Conclusion

The Wounded Knee Massacre marked the end of the last large-scale resistance to reservation life, with only minor raids occurring sporadically thereafter. The last of these was an Apache raid against Arizona ranchers in 1924.

About one-fifth of the 5.2 million Native Americans currently live on reservations. Many live in conditions that would be unimaginable to their forbearers. The US Government has persisted in keeping those living on the reservations in a state of dependency. The Indian Wars produced a number of inspiring stories of courage that can be relished not just by Native Americans but by all Americans. One of the balms Native Americans have is the knowledge that their ancestors fought to the bitter end and resisted the overwhelming military might of their adversary for as long as they possibly could. Their legacy as great warriors is acknowledged by descendants of both sides who fought during the Indian Wars.

The death of the great chiefs had much to do with the end of the Indian Wars. When their generation passed, each generation that followed knew less about life in a tribal setting outside of a government-administered reservation. Both Crazy Horse and Sitting Bull found reservation life utterly intolerable and died shortly after being confined to it. Geronimo, however, lived well into the new century, although not happily.

On his deathbed in 1909 as a prisoner of war in Fort Sill, Oklahoma, he shared his regrets with his nephew. "I should have never surrendered," he said. "I should have fought until I was the last man alive."

Washita River

Lt Col George Armstrong Custer's 7th Cavalry attacked a Southern Cheyenne camp on the Washita River in the Indian Territory. A half dozen allied tribes encamped nearby counterattacked Custer's cavalry. Custer used his 53 captives as human shields in order to withdraw unopposed.

1868



The 7th US Cavalry charging into Black Kettle's village at daylight, 27 November 1868

Big Hole

On 9-10 August 1877, US soldiers attacked the Nez Perce during their forced march to Canada. After a dawn attack on the Nez Perce camp in the Montana Territory, the warriors conducted a brilliant rearguard action that pinned down the soldiers. Although losing 89 of their tribe, the Nez Perce killed 29 soldiers.

1877

Big Dry Wash

Five companies of US cavalry pursued Chief Niatosh's White Mountain Apache band of 60 warriors to punish them for a raid. A sharp battle unfolded in Big Dry Wash in Chevelon Canyon on 17 July 1882, with the Apaches losing one-third of their force, including Niatosh. Outflanked by the cavalry, they withdrew.

1882

Beecher Island

A Sioux-Cheyenne force besieged a party of 49 cavalry scouts bivouacked on a river in the Colorado Territory. The scouts, armed with seven-round Spencer repeating rifles, retreated to a sandy island where they held out for nine days until relief arrived.

1869



A soldier offers aid to his wounded comrade after the Battle of Beecher Island

Rosebud Creek

General George Crook's 1,300 troops were part of a three-pronged strike against the Lakota summer camp in the Montana Territory. Using Friendly Crow and Shoshone scouts to reconnoitre the enemy, on 17 June 1876, Crook seized the high ground over the creek just in time to receive a powerful attack by Lakota and Cheyenne. In a rare pitched battle, the attackers nearly overran Crook's force.

1876



General George Crook

1862



"TROUBLE HAD BEEN BREWING FOR SOME TIME.
BRITISH AND FRENCH HIGH-HANDEDNESS IN THEIR
DEALINGS WITH THE YOUNG UNITED STATES HAD
INJURED AMERICAN PRIDE"



A coloured engraving of British
forces storming the city of
Washington, 24 August 1814



WASHINGTON BURNING

How plundering, sabotage & atrocities set the war of 1812 alight

The British force slogging its way towards Washington, the capital city of the still infant United States of America, was hot, tired and in an ugly mood after costly fighting in scorching temperatures.

Having scattered the disorganised American defenders at Bladensburg, the advanced units of the British column, which had borne the brunt of the fighting, sat down to recover. Casualties had been heavy, with perhaps as many as 180 men dying to secure the route to the capital, with hundreds more wounded. The final push to Washington would be undertaken by fresh troops, who had played no part in the fighting.

Arriving in the capital in the fading light of 24 August 1814, the British, led by Major General Robert Ross and Rear Admiral George Cockburn, made their way to the White House and found it deserted. The table being laid for a generous

meal for 40, the British officers took advantage and enjoyed a fine dinner to cap off a hard but productive day's work.

But the pleasant diversion could not last for long. Ross and Cockburn had not come to the White House to dine out – they had come to burn it to the ground.

On to Canada

After the end of the War of Independence, it would be more than a century before Britain and America forged their 'special relationship', and early interactions between the two nations were marked by suspicion and lingering enmity. This finally boiled over in the War of 1812, which stubbornly held onto its name despite almost all of the important events happening in later years.

Trouble had been brewing for some time. British and French high-handedness in their dealings with the young United States had injured

American pride. Prickly in their attitude to the British, who they had so recently ousted as their colonial masters, Americans were aware that they were still a minor country, liable to be pushed around by the major powers.

Grievances steadily built up, most notably caused by Britain's insistence that it had the right to stop and search neutral ships during its war with Napoleon, and impress any British sailors thus discovered. The 'Order in Council' of 1807 went further, insisting that all neutral vessels must first call in at a British port and pay duties before continuing to their destination, wherever that may be.

The United States also had territorial ambitions and had an eye on Canada, still controlled by the British. The war in Europe offered an opportunity – perhaps while the British had their hands full fighting Napoleon across the Atlantic, the US could take control of its northern neighbour.

Distrust between Britain and the US ran so deep that there were suspicions the British were trying to convince the New England states to secede from the Union, while Spanish territories in Texas and the Floridas offered the British (on good terms with Spain thanks to Wellington's army in the Iberian peninsula) an easy route into the US.

'War hawks' like Henry Clay were prominent in stirring up patriotic fervour and, despite having an army of just 4,000 men, war was declared on Britain in 1812. Ironically, it was declared at almost the exact moment that Britain repealed its unpopular 1807 Order in Council, one of the main causes of American unrest.

The five theatres

Despite limited resources, the Americans opted for a bold plan, launching three campaigns against Canada in two theatres: the north-west and the Niagara Frontier. Further fighting would take place on the Saint Lawrence and Lake Champlain Front, the Chesapeake Bay and in the south-west, meaning that American forces were committed in no fewer than five theatres.

In their favour was the fact that Britain really could not spare much in the way of manpower or naval forces. The start of the war offered the Americans a chance to make rapid gains while Britain's attention was focused elsewhere.

It was in Canada that some of the fiercest fighting took place – and it was also here that the seeds for the destruction of Washington were sown.

Henry Clay had famously remarked that the militia of Kentucky could do the job of conquering Canada all on its own. When it came time to actually invade, however, problems quickly presented themselves.

Quebec was the obvious target, and had been the goal of an American invasion in 1775, before the colonies had even declared their independence. It had proved too tough a nut to crack then and was considered too formidable in 1812, having the strongest British garrison.

A thrust on Montreal was planned instead, alongside a two-pronged invasion of the territory known as 'Upper Canada', one from Detroit and one across the Niagara Frontier.

Questionable planning and faulty leadership blighted all three of the American offensives and in each case elements of the state militia refused to cross the border into Canada – a decided impediment for an invasion.

Brigadier General William Hull's offensive from Detroit was a disaster, leading to the loss of two forts and Detroit itself. William Henry Harrison took command and suffered a serious defeat when an 850-strong scouting party was routed by a combined British/Indian force. With the murder of surrendered men marking the end of the fighting, animosity between the two sides was already growing. On the Niagara Frontier there was further trouble for the Americans, with 300 casualties (as well as close to 1,000 prisoners) taken during an attack on Queenston Heights, while the move on Montreal also miscarried.

It had been an inauspicious start to the war, but USS Constitution had won glory by battering HMS Guerriere in August, earning the nickname, 'Old Ironsides' in the process. Despite this signal success, American plans needed to be revised for the following campaign. The war was about to ignite.

A capital burns

Having learned their lesson the previous year, just one American offensive was planned into Canada for 1813 – across the Niagara Frontier. A move towards Lake Ontario was intended to lay the foundations for a later assault on Montreal, but General Henry Dearborn, the commanding officer, had serious doubts.

Initially ordered to take Forts George and Erie, as well as attacking Kingston, Ontario, he felt more comfortable limiting himself to one objective and opted instead for York, the capital of Upper Canada. Despite being the capital, York was strategically unimportant and its capture would achieve little apart from an opportunity for a little positive propaganda.

Nevertheless, on 27 April, Dearborn launched his attack. Landing his forces from Lake Ontario, the offensive almost came unstuck immediately as the first wave was nearly overwhelmed. Managing to hang on until the second wave landed, the Americans were then able to put their numerical advantage (their 1,500-strong force outnumbered the British and their Native American allies by 2:1) to good use.

Once the American landing was secure, in fact, the British regulars recognised the hopelessness of their situation and withdrew from York entirely, leaving Canadian militia to continue the defence. Their principal action was the detonation of a large powder magazine, which sent a vast amount of earth and boulders into the air. One of the boulders landed on the American officer commanding the landing, the extravagantly named Zebulon Pike, who was mortally wounded.

Prior to the attack, Pike had warned his men against mistreating the civilian population of the town. The Canadians, according to Pike, were unwilling participants in the war, having been forced to take part by the British. Whether or not Pike's death influenced American actions, looting of civilian properties soon started and Parliament buildings were put to the torch. Unwilling to stop his troops' actions and perhaps supporting their activities, Dearborn ordered the destruction

“DESPITE THEIR LIMITED RESOURCES, THE AMERICANS OPTED FOR A BOLD PLAN, LAUNCHING THREE CAMPAIGNS AGAINST CANADA IN TWO THEATRES: THE NORTH-WEST AND THE NIAGARA FRONTIER”



Below: British soldiers look on as flames engulf the American capital

The fourth President of the United States, James Madison, The War of 1812 was often referred to as 'Madison's War'

Dearborn would draw criticism for letting the British regulars escape to fight another day, but there was no word of censure for the destruction of York. It would recover, of course, and eventually became better known as Toronto.

As far as the British were concerned, the early years of the war were very much a case of making do with what was at hand. Canada, under the overall command of Sir George Prevost, could not look for any serious reinforcements while the Napoleonic War raged in Europe.

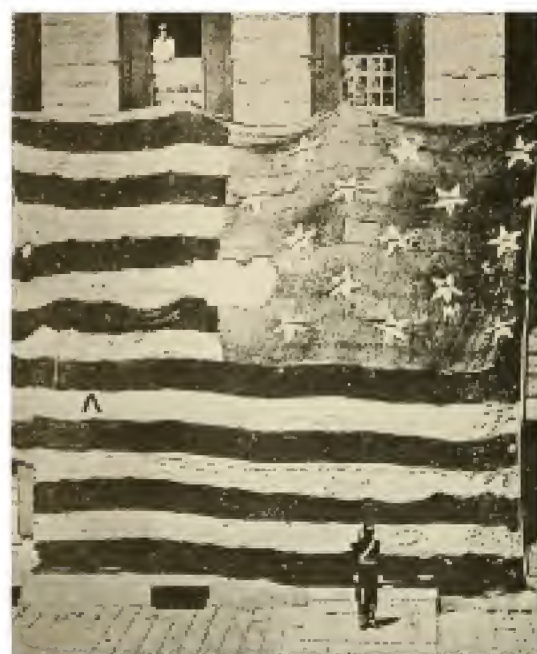
The Americans abandoned Fort George and set fire to the village of Newark. Later, the British forces attacked and burned Buffalo (following the Battle of Buffalo or Battle of Black Rock). In turn, United States forces destroyed Port Dover.

A costly British assault on Fort Erie continued the seesaw nature of the conflict; the assault was repulsed, but the Americans then destroyed the fort and withdrew from Canada. Their dream of an easy conquest had come to nothing.

By the summer of 1814, 10,000 British regulars, many of them veterans of Wellington's Peninsula campaign, were heading for America. Meanwhile, the British naval blockade, with the benefit of extra ships now they were not needed to blockade French ports, was starting to bite. Extended across the entire eastern seaboard, it suffocated American commerce; exports were at just ten per cent of their pre-war levels in 1814.

Raids had also proved effective – 25 American ships had been destroyed in an operation on the Connecticut River. It was the sort of warfare that only a select few had championed during the War of Independence. There had been no appetite for punitive coastal raids then, with reconciliation the primary goal of the British war effort. Now, with the intention of putting the young nation in its place and enforcing peace terms favourable to the British, there were no such qualms.

Although it is easy to see the operation against Washington as retaliation for the burning of York, Newark and Dover Port, the reality was not quite so clear-cut. Certainly temperatures on both sides of the conflict had been raised by acts of destruction, but neither side could claim the moral high ground.



Above: The flag situated at Fort McHenry when a British attack was successfully repulsed in September 1814

Britain, of course, did not intend to actually occupy the capital this time. It may have been a Royal Navy captain, Joseph Nourse, who planted the idea for the raid on Washington – not because it would be payback for York, but simply because it would be so easy to accomplish. The Americans were in no fit state to offer serious resistance.

The local commander, General William Winder, was a political appointment lacking any real military nous. As the nephew of Maryland governor Levin Winder, it was expected that he would be able to mobilise state militia in order to offer resistance to any British landing. In the event, only 250 Maryland militia had been forthcoming when the critical moment came.

Making matters worse for Winder, there was doubt about where the British would strike. British Vice Admiral Sir Alexander Forester Inglis Cochrane had deployed ships to several areas to disguise intentions. When General Ross's brigade of 4,000 men landed on 19 August, there was nobody to meet them and over the next two days, they marched unopposed, covering 32 kilometres despite the fierce summer heat.

The American response was so lackadaisical that the British were able to get through two potential crisis points uninterrupted. First, Ross and Cockburn could not decide which route to take to Washington and halted their march for the best part of two days to ponder the matter.

Having finally decided to loop around and attack from the north-east, they started



The Royal Navy subjects Fort Mchenry to a fierce bombardment

THE STAR-SPANGLED BANNER

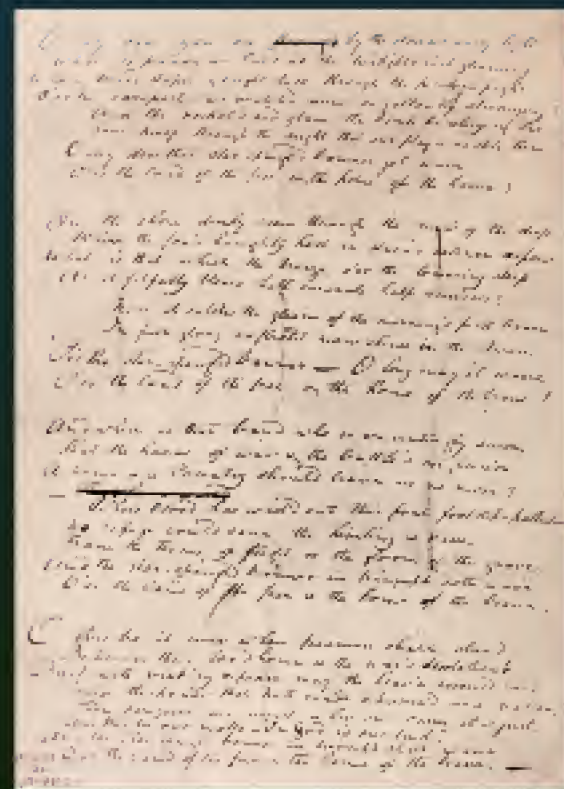
AMERICA'S NATIONAL ANTHEM HAD A DRAMATIC BIRTH

As well as helping to create an atmosphere of national unity, the War of 1812 also gave the United States its national anthem - although it took more than a century for it to be adopted as such.

The British assault on Baltimore, in which Major General Robert Ross lost his life, featured a heavy naval bombardment of Fort McHenry, which resisted all attempts to subdue it. On the morning of 14 September 1814, a Washington lawyer called Francis Scott Key saw the Stars and Stripes still defiantly flying above Fort McHenry and scribbled some song lyrics on the back of a letter he happened to have in his pocket.

British naval might had been resisted, and the Congreve rockets used in the bombardment had served only to provide the 'rockets' red glare' that had illuminated the flag throughout the night. The poetic lyrics (it was always intended to be a song, and Key suggested it should be sung to the tune of *To Anacreon In Heaven*), were renamed *The Star-Spangled Banner*, having originally been titled *The Defence Of Fort M'Henry*. Though notoriously difficult to sing, it was officially adopted as the nation's anthem in 1931.

Below: The original lyrics to 'The Star-Spangled Banner' (originally written without a title), with a couple of alterations visible



The Shawnee Chief Tecumseh is shot and killed by Archibald Johnston during the Battle of the Thames



marching again on 23 August, only to receive a recall order from Admiral Cochrane. Ross and Cockburn, as joint army and navy commanders, now debated on whether or not Cochrane's order could or should be ignored. The following morning, they came to the conclusion that they were so far committed to the attack that it could no longer be called off, and they set off once more. Bladensburg, where a bridge offered a convenient crossing of the Potomac, was their interim destination.

The Battle of Bladensburg

American resistance may have been disorganised, but it finally took solid form on the opposite side of the bridge at Bladensburg. General Winder had been in position at the Washington Navy Yard, fearing a strike there, when firm news came of the British movements. He arrived at Bladensburg in time to witness a fierce struggle.

The British assault included the use of Congreve rockets, which added a banshee-like mayhem to the battlefield, and the first two American lines were soon broken. A third, boosted by a strong artillery component, promised to stand firm until Winder ordered it to retreat as well. The British had paid a price, but the road to Washington was clear. The Capitol Building was the first to burn, before Ross and his fellow officers took advantage of President Madison's hospitality in the dining room of the White House. Actually called either the 'President's House' or the 'Executive Mansion' at the time, the building was impressive but incomplete when it

"BRITISH POLICY BECAME ONE OF HANGING ON TO CANADA WHILE MOUNTING LIMITED NAVAL RAIDS ON THE EAST COAST OF AMERICA"

received its uninvited visitors. It was, however, already painted white, as several historical references confirm. The story that it was painted white to cover the scorch marks of the 1814 burning is, sadly, a myth. As well as furniture and clothing, Madison's library was destroyed in the fire, set by Cockburn's sailors rather than Ross's soldiers, and the damage was estimated at around \$12,000. Famously, a portrait of George Washington had been removed from the house at the last moment, supposedly by the fleeing staff, and preserved.

The Treasury Building was next, but the British did not consider private property a target, although one dwelling was burned after shots were fired from its windows, one of which downed Ross's horse. However, the fires in Washington were dwarfed by the one at the Navy Yard, set by the Americans themselves so that it would not fall into British hands. The following day, an increasingly exhausted British force set fire to the buildings of the State and War Departments, and the printing presses of the National Intelligencer were wrecked. As if to put a stop to the unsavoury activities, a severe thunderstorm then erupted, which has been interpreted as both the wrath of God at British brutality and also a final

punishment on the town itself – it destroyed many private dwellings and the British beat a hasty retreat. The raid on Washington was over.

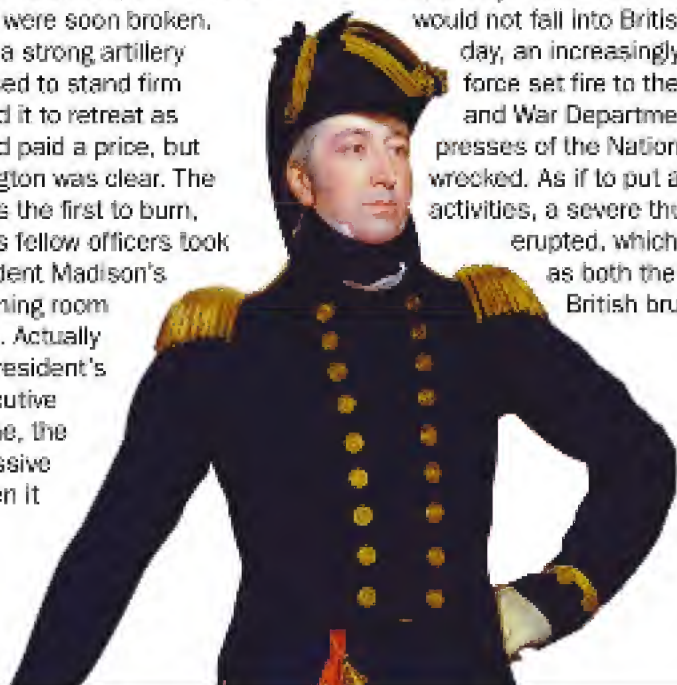
The aftermath

There were many ways of looking at the burning of Washington. It was a demonstration of British power – especially in relation to its fleet, which could land men anywhere it chose – and a warning to the Americans to respect their former masters. It was perhaps a fitting retaliation for similar acts by American forces during the war, although exactly where such tit-for-tat actions began or ended could be debated endlessly.

It was, as the naval captain Joseph Nourse had suggested, something that just seemed too easy to ignore, and the civilian population was not targeted in any case. Still, there were many who saw it as an act of barbarism and there were shocked reactions on both sides of the Atlantic. Unsurprisingly, the president himself objected strongly, but in London there were cutting remarks in the press to the effect that even the Cossacks had been more merciful to Paris.

Most incredible, however, was the ease with which it had been accomplished. After more than two years of war, the summer weather was the strongest opponent the British had to contend with in a march to their enemy's capital. America had once dreamed of adding Canada to its territory, but it had eventually proved unable to protect its own seat of government.

Flushed with their success, the British attempted another raid, this time on Baltimore, which promised far greater spoils if they could



Left: George Cockburn would go on to become Admiral of the Fleet

FROM SLAVES TO SOLDIERS

IT MAY HAVE BEEN AN INCONCLUSIVE AFFAIR, BUT THE WAR OF 1812 FREED MANY SLAVES FROM THEIR LIVES OF SERVITUDE

Britain's diversionary raids on the American East Coast, designed to take the pressure off the defensive forces in Canada, provided an opportunity for slaves in the area to escape and build new lives.

The view of slaves at the time was that they were docile and happy enough in their state of captivity. While it is true that the Maryland and Virginia slaves were on the whole better treated than their southern counterparts, the idea that they were happy being slaves was obviously mistaken and this was placed beyond doubt when British forces started to arrive in the region in early 1813.

Although incitement of the slave population was firmly prohibited by orders from home, the British commanders, Admiral John Borlase Warren and Colonel Sir Thomas Sydney Beckwith, did have permission to offer protection to slaves who were willing to help, whether by offering labour or giving information on the local territory. This protection extended to taking the slaves, as free men, to British territories (known as 'emigration'), or allowing the slaves to join the British army or navy.

American slave owners soon began to fear that almost all of their 'property' would take advantage of this generous offer whenever a British ship appeared. Some of the slaves were taken to the West Indies or Nova Scotia, while many served as labourers or scouts.

As well as the valuable work done by the freed slaves, the white population of America had a dread of their former property turning against them, making the defection of slaves a major propaganda tool.

By 1814, under the command of Admiral Cochrane, British policy had expanded to actively encourage emigration. They were, in Cochrane's own words, "more terrific to the Americans than any troops that can be brought forward."

As well as large numbers leaving their former masters, around 200 slaves enlisted in a 'Corps of Colonial Marines', which saw service at Bladensburg on the approach to Washington and drew praise for the steadiness and bravery of its troops. The unit also performed well as skirmishers in the ill-fated approach to Baltimore.

Right: Gabriel Hall, who migrated from the United States to Nova Scotia during the War of 1812



British troops retain remarkable discipline in this sanitised depiction of the burning of Washington

repeat their feats at Washington. Ross once more led his men into battle, but paid the ultimate price when he was killed by American sharpshooters on the approach to the city. The Royal Navy was then stymied in its assault on Fort M'Henry, guarding Baltimore's fine harbour, and the attack was called off.

The War of 1812 has been called a 'silly little war', full of bad decisions and blundering leadership, but it provided a wake-up call for the US and helped set it on a course for greater unity and enormous expansion. The lack of complete harmony between the states would erupt in far more bloody fashion a couple of generations later, but as the war wound down, it had served to bring the states closer together. Fittingly, for a war that had started despite the British repealing the very act that had, in large part, provoked it,

the greatest American victory of the war came after it had ended. Peace had already been agreed before Andrew Jackson won his famous victory at New Orleans on 8 January 1815. Both sides were able to put their worst experiences of the War of 1812 behind them rapidly.

The Americans may have greeted the Treaty of Ghent with a sigh of relief rather than a shout of triumph, as the historian George Dangerfield noted, but soon they were remembering their victories at New Orleans, on Lake Erie and on the high seas where the USS Constitution had immortalised herself. The British, meanwhile, soon had a major victory to savour after putting the cork back into Napoleon's bottle at Waterloo. The events of the 'silly little war', even the burning of Washington itself, paled into insignificance in comparison.



It was during the Battle of North Point that Robert Ross was fatally wounded

It was during the Battle of North Point that Robert Ross was fatally wounded



Bluffer's Guide

MEXICO, 2 OCTOBER 1835 - 21 APRIL 1836

The Texas Revolution

Did you know?

The modern city of Houston, Texas, was named after General Sam Houston following his leadership at the Battle of San Jacinto

Timeline

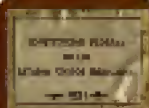
2 OCTOBER 1835



COME AND TAKE IT

Though little more than a skirmish, the Battle of Gonzales marks the first official conflict of the revolution, ending in a Texian victory.

23 OCTOBER 1835



After months of manoeuvring, the Constitution of 1824 is overturned, and in December the Siete Leyes are enacted, underlining the validity of the Texian cause.

6 MARCH 1836



After holding out for 13 days against vastly superior numbers, Texian forces are overrun and slaughtered at the Battle of the Alamo.

27 MARCH 1836



On the orders of Santa Anna, hundreds of Texian prisoners are massacred at Goliad following their surrender at the Battle of Coleto Creek.



What was it?

In protest at legislative changes made by the federal government, residents of the Mexican province of Texas took up arms in late 1835 and expelled the region's federal troops. Shortly after, the Consultation (a provisional Texian government) was assembled to oversee the burgeoning revolution, and determine its goals – a return to the Mexican Constitution of 1824 or independence.

Angered by the rebellion, President Antonio López de Santa Anna opted to personally lead a military force to retake Texas, entering the province in early 1836. The cruelty shown by the Mexican army caused swathes of civilians to flee before them, an exodus known as the Runaway Scrape, and ultimately won more sympathy for the revolutionaries' cause. The decisive conflict came at the Battle of San Jacinto, where Santa Anna was captured following a surprise attack. The Texian army emerged victorious after just 18 minutes.

The revolution left Texas as an independent republic, though Mexico refused to recognise it as such. This state of affairs, which would exist for almost a decade, culminated in annexation by the United States and the outbreak of the Mexican-American War.



Why did it happen?

There were a number of factors that contributed to the outbreak of the Texas Revolution, but chief among them was a cultural and political disconnect between the Anglo-American population of the region, and the Mexican government. After winning independence in 1821, Mexico relaxed regulations on colonists or 'empresarios', which allowed thousands of settlers to move to Texas from the southern United States. The end result was a region where Anglo-American Texans outnumbered the Spanish and Mexican Tejanos.

The final straw came with the introduction of the 'Siete Leyes' (Seven Laws) in 1835. This legislation radically changed the governmental structure of Mexico, but their most salient consequence was the further centralisation of political power under Santa Anna. Reaction to these changes in Texas was overwhelmingly negative, and effectively lit the revolutionary touch paper, though it's safe to say that revolution had already become a case of 'when' and not 'if'.



Who was involved?



Antonio López de Santa Anna

21 February 1794 - 21 June 1876

President of Mexico, Santa Anna personally led the Mexican Army during the revolution and was ultimately captured at San Jacinto.



Sam Houston

2 March 1793 - 26 July 1863

Leader of the Texian army, Houston successfully led his forces in the Battle of San Jacinto to clinch victory for the revolutionaries.

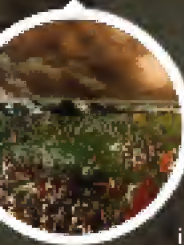


Davy Crockett

17 August 1786 - 6 March 1836

A famed American frontiersman and politician, Crockett passed into folklore thanks to his heroic death at the Battle of the Alamo.

21 APRIL 1836



Texian forces rout the Mexican army in the decisive Battle of San Jacinto, the final major armed conflict of the Texas Revolution. Santa Anna is taken prisoner.

14 MAY 1836



The Treaties of Velasco are signed by the captured Santa Anna, ending hostilities, though they are not officially ratified by the Mexican government.

THE MEXICAN-AMERICAN WAR

America's Manifest Destiny is a concept that is taught in schools across the globe, but it wasn't something that happened easily

Manifest Destiny – the phrase and its sentiment would soon grow strong in the fledgling United States of America after shrugging off its colonial shackles. However, it wasn't enough for this newborn country to thrive on its hard-fought freedoms while still clutching to the east coast of the continent – its booming populations and pioneer spirit demanded more.

By the time James K Polk was sworn in as the 11th president, all eyes were already fixed on the west and the riches it could yield. "Our Union is a confederation of independent States, whose policy is peace with each other and all the world," he declared in his address. "To enlarge its limits is to extend the dominions of peace over additional territories and increasing millions. The world has nothing to fear from military ambition

in our Government." However, just one year later, in 1846, the United States would be at war and American blood would be shed on foreign soil for the first time.

After fighting hard to break from the grip of their respective European parents, the US and Mexico was each seeking to define itself on the North American continent. However, the former Spanish dependency immediately struggled to control the vast swathes of land it had inherited in 1821, stretching from the state of Coahuila y Tejas in the north-east, to California in the north-west and all the way down to the Yucatan in the south. The population of Texas (a part of the Coahuila y Tejas state) in particular proved a problem for the Mexican government, as it was mainly populated by American immigrants fresh with the notions of freedom, democracy and equality. Though there was willingness to join the newly created nation of Mexico, as more and more Mexican immigrants travelled the state it became increasingly clear that an American-majority could prove troublesome.

By 1835, tensions reached a crescendo. Through desperate attempts to maintain control over its outlying state, the Mexican government had stopped all legal American immigration into Texas. Worse, under the new dictatorship of Antonio López de Santa Anna, an increased centralisation of power was dashing the hopes of a free democracy in the state and the country. In the meantime Texas had grown rich, with its exports of cotton and animal skins amounting to some half a million dollars. This made it a prize worth keeping or, for the American government, one well worth acquiring.

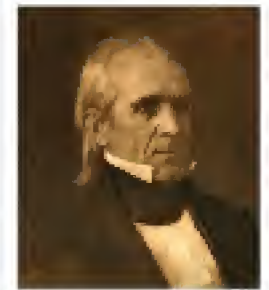
It wasn't long before tensions boiled over into outright hostilities, with the Mexican government seeking to tighten its grip on Texas. The military presence in Texas was stepped up dramatically, and when Mexican troops under Francisco de Castaneda were sent to confiscate a cannon





General Antonio López de Santa Anna

Dubbed the Napoleon of the West, Santa Anna's ambitions both as a general and president of Mexico are unsurpassed in the country's history. He offered to lead the Mexican forces defending the invasion by the US, shortly before announcing himself president.



President James K Polk

After running on a ticket supporting widespread expansion of US borders, Polk was sworn in as the 11th President of the USA just as tensions with Mexico were coming to a head. He served only one term in office, before retiring soon after the end of the ensuing war.



General Zachary Taylor

A seasoned veteran, Taylor had fought in the War of 1812, as well as against the Black Crow and Seminole Native American tribes. During the Mexican-American War his experience helped win many battles. He was elected the 12th President of the US after President Polk's death in 1849.



John C Frémont

Frémont was involved in numerous missions into the West, searching for potential routes to the Pacific. While operating in California he came into conflict with Mexican populations, who saw his mission as hostile. He was actively involved in armed uprisings, and became the first Senator of California in 1850.



General Mariano Arista

Serving in the New Spanish army before joining the revolutionary cause, Arista fought during the Texas Revolution. Soon after the Mexican-American War he succeeded de Herrera as president.



José Joaquín de Herrera

At times serving as the President of Mexico, Herrera's willingness to compromise with American officials in the sale of territory cost him his office. He served as a general during the war.



The Mexican General Santa Anna surrenders to Texan Sam Houston after the Battle of San Jacinto

“THE MANIFEST DESTINY, IT WOULD SEEM, WAS NOT SOMETHING THAT WOULD HAPPEN OF ITS OWN ACCORD”

belonging to the colonists of Gonzales, the Texans refused. The ensuing skirmish sparked the Texas Revolution, which would prove to be brief, but bloody. The Battle of the Alamo stands as its most iconic moment, where just under 200 Texans, defending their position against nearly ten times as many Mexicans, were slaughtered ruthlessly by Santa Anna's men.

The battle, more aptly described as a massacre, only served to inspire further resistance against Mexican rule and is even to this day inscribed in the folklore of the Lone Star State. The Alamo, as well as Goliad where hundreds of Texian prisoners were executed, quickly became rallying cries for the Revolution

and united the colonists. After the embarrassing but decisive defeat by an inferior Texian force at the Battle of San Jacinto, Santa Anna was forced to surrender. It had taken just a few months for the small uprising to bring the Mexican state to its knees. Even before the election of President Polk, the US was working to strengthen its presence in California, Oregon and the disputed lands west of Texas. The Manifest Destiny, it would seem, was not something that would happen of its own accord.

Shortly after Texas' successful revolution, talk of its annexation by the US was rife. The many American colonists in Texas were in favour of the idea, but it wasn't until 1845 that a bill

was successfully passed through congress to officially form the 28th State of the USA.

All the while John C Frémont, a lieutenant in the Topographical Engineers of the US Army, had been tasked with finding a route from the Mississippi River to the Pacific, acting almost as the spearhead of further American expansionist ambitions. In January 1846, during his latest exploration of California, Frémont took with him an armed group of around 60. Like Texas, California was a contentious territory and was desired by Mexico, the US and even Great Britain for its potential riches, as well as its access to the Pacific Ocean.

Whether or not Frémont's presence was intended to galvanise the pro-independence American settlers in California or not, shortly after his arrival the Bear Flag Revolution sprang up to gain the province's own freedom from the Mexican state. This was yet another thorn in the

Timeline

1821

● Mexico wins independence

After over 11 years of fighting the Spanish crown, revolutionary forces of former New Spain, or the Mexican Empire, declare independence from the colonial power.
28 September 1821

● Texas Revolution begins

Responding to an increased centralising of power and military aggression by the Mexican government, many Texans revolt in a bid to win independence for the state.
21 October 1835

● Battle of the Alamo

General Santa Anna's army of around 1,600 surrounds a small Texan garrison at the Alamo. After a short siege, the Mexican army massacres almost the entire garrison.
6 March 1836

● Battle of San Jacinto

Taking Santa Anna's force entirely by surprise, a smaller force of Texans under Sam Houston defeats the Mexican army in a battle that lasts just 18 minutes. Texas independence is declared.
21 April 1836

● Battle of Salado Creek

After re-election as President of Mexico, Santa Anna attempts to retake the former province of Texas. His army under Adrián Woll is defeated by the Texans.
17 September 1842

side of the Mexican government, who now saw the US grip on the western territories tightening.

In the meantime yet another of President Polk's agents, John Slidell, had been sent to Mexico City to meet with President José Joaquín de Herrera. His supposed intention was discussing peace terms over Texas, which wasn't yet recognised as a US State by Mexico. Secretly, however, Slidell had been sent with a mandate to offer over \$20,000,000 in exchange for the territories of New Mexico and California. When the Mexican press heard of the deal they were outraged and Herrera was branded as a traitor to his country – there was no way a Mexican president could even entertain the notion of making deals with the Americans.

Slidell was forced to leave empty-handed – methods of diplomacy and even commerce had failed to settle the situation. War seemed inevitable. With all the pieces in place, only the slightest of confrontations was needed. In January 1846 President Polk directed General Zachary Taylor, who he'd previously positioned at Corpus Christi in the south of the state, towards the Rio Grande river. This was seen as an act of aggression and is in fact the natural border between the two countries.

On 24 April Captain Seth Barton Thornton, part of Taylor's contingent, set off with around 70 dragoons to patrol an area near La Rosia, nearer the Rio Grande. They cautiously scouted out the area after sunrise on 25 April to discover if and where the Mexican force had crossed the Rio Grande. They would find out soon enough.



During the Battle of Alamo the Mexican army massacred almost all of the Texan garrison

While investigating a plantation, Thornton and his men became trapped by a vastly superior Mexican force commanded by General Torrejón. Without setting any guards or taking any precautions to stay alert of the enemy, the Americans had been taken completely by surprise by thousands of Mexican troops already encamped in the area. 16 of the dragoons were killed and the rest taken by Torrejón's force, including Captain Thornton and his officers.

News of the Thornton Affair, as it would later become known, reached Washington in May and

gave President Polk his casus belli. He stood before Congress on 11 May and declared Mexico had "invaded our territory and shed American blood upon American soil. She has proclaimed that hostilities have commenced, and that the two nations are now at war". There was no question of whether Congress would vote for the war, which was officially declared on 13 May.

From the fires of revolution, both Mexico and the United States had finally collided and the following conflict would decide the shape of the continent for future generations.

The Manifest Destiny, the self-fulfilling prophecy of the USA's dominance in North America, was to be fought for on the battlefields of Palo Alto, Tabasco and many others. Soon Mexico City itself fell to the American forces and the Mexican government was bitterly forced to concede defeat.



A small band of Texans took the Mexican army by surprise during the Battle of San Jacinto in an 18-minute battle



The first official state flag of the state of California. It was first raised in the 1846 revolt

● Polk elected president

After winning the presidency on a ticket promising further expansion into the west, James Polk takes office amid heightened tensions between the U.S. Mexico and Great Britain.

4 March 1845

● USA annexes Texas

After negotiations between the Republic of Texas and the USA, the bill to incorporate Texas as a US State is passed by Congress. Texas becomes a state by the end of the year.

29 December 1845

● de Herrera deposed

After Polk sends an agent with an offer to buy the territories of California and New Mexico for \$20m, President José Joaquín de Herrera is deposed for even considering the possibility.

December 1845

● Thornton Affair

With General Zachary Taylor encamped north of the Rio Grande river, a small contingent of dragoons under Captain Seth Thornton is attacked and captured by a superior Mexican force.

25 April 1846

● War declared

After receiving news of the Thornton Affair, President Polk addresses congress and presents his case for war with Mexico. The vote passes with a large majority and war is declared.

13 May 1846



LEE

V

America's greatest generals
clash in the fierce fight for
their country's soul



On 12 April 1861, troops from the seceding state of South Carolina opened fire on Federal government-held Fort Sumter, sparking the American Civil War. Soon, several other Southern states joined South Carolina in secession, seeking to preserve the institution of slavery by withdrawing from the Union and forming the Confederate States of America.

Abraham Lincoln, 16th president of the United States of America, was resolved to bring the wayward states back, even by force. In the enormous struggle that ensued, the largest and deadliest ever to be waged on American soil, Union and Confederate armies would be led by two extraordinary soldiers, Ulysses S. Grant and Robert E. Lee, who in their origins and personalities could not have been more different from each other, except for their ferocious dedication to victory.

Born in January 1807 in Virginia, Robert E. Lee was the son of Henry 'Light Horse Harry', a cavalry commander from the colony of Virginia who had achieved renown in the American War of Independence. Military service was part of the heritage of the Lee family, and the young man was admitted to United States Military Academy at West Point as part of the class of 1829. Lee seemed destined for great things, and played a role in one of the more notable episodes of the immediate pre-civil war era.

In October 1859, John Brown, a fanatical abolitionist, and 21 of his followers had seized the Federal arsenal at Harpers Ferry, Virginia. His

**"IT IS WELL THAT WAR IS SO
TERRIBLE, OTHERWISE WE
SHOULD GROW TOO FOND OF IT"**

Lee to General Longstreet at
the Battle of Fredericksburg,
11 December 1862

S

GRANT

plan was to give the firearms within to slaves and foment an insurrection. This plot failed when a group of US Marines, under the command of US Army Lieutenant Colonel Lee, appeared on the scene and quashed the raiders, killing ten and capturing most of the rest, including Brown.

By contrast, Lee's fellow West Point graduate Ulysses S Grant possessed an unexceptional everyman quality. Born in April 1822 to a tanner in Ohio, his lowly origins and reportedly shabby dress belied a careful, analytical mind. Very few would have predicted that the unassuming Grant, who had gone so far as to resign from the army in 1854, and then fail in his civilian business ventures, would one day become the paramount commander of the United States Army.

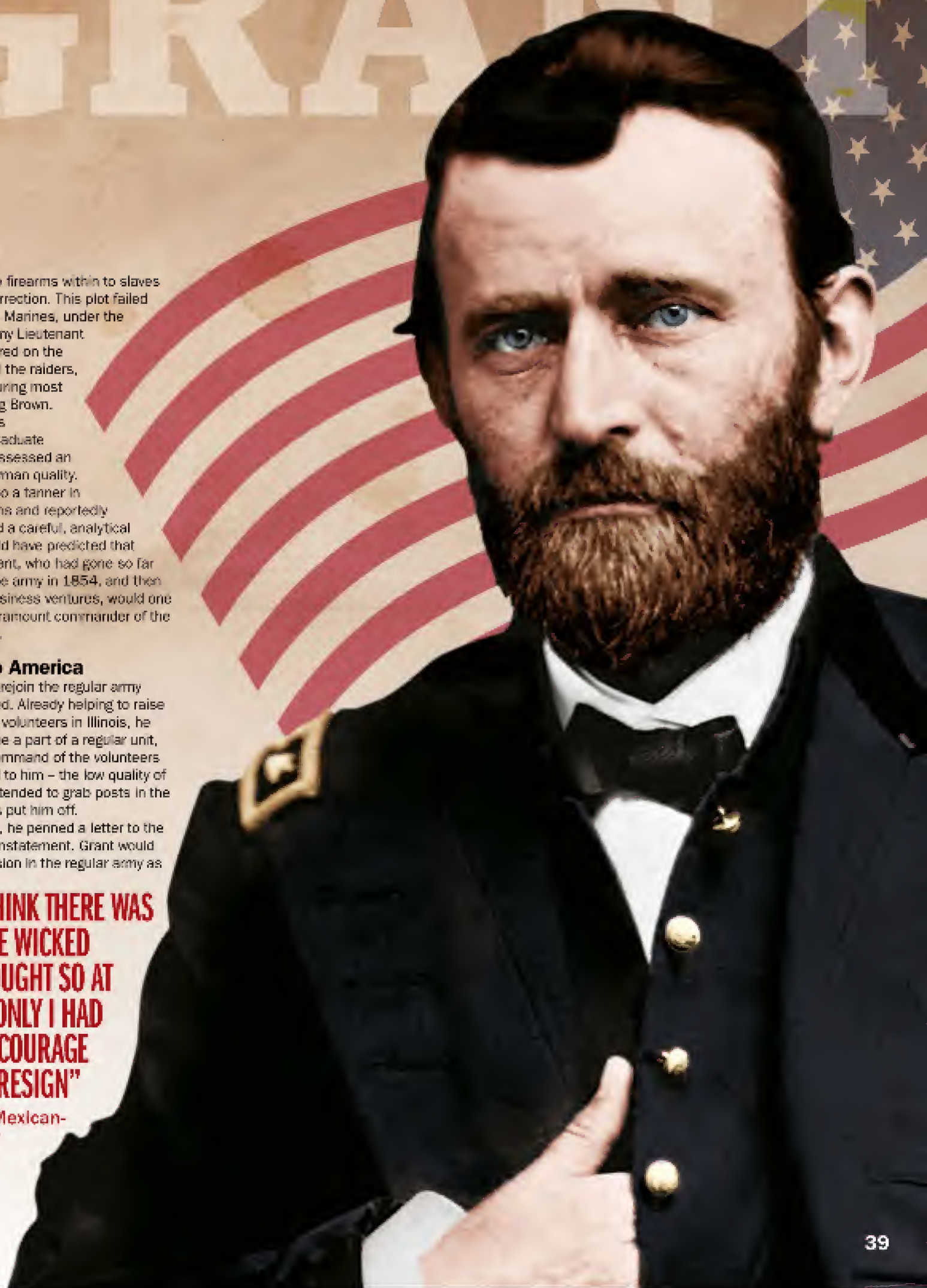
War comes to America

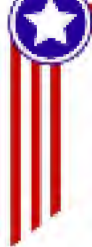
Grant was eager to rejoin the regular army after the war erupted. Already helping to raise a company of state volunteers in Illinois, he much preferred to be a part of a regular unit, and turned down command of the volunteers when it was offered to him – the low quality of the politicians who tended to grab posts in the volunteer regiments put him off.

On 24 May 1861, he penned a letter to the army requesting reinstatement. Grant would be given a commission in the regular army as

"I DO NOT THINK THERE WAS EVER A MORE WICKED WAR... I THOUGHT SO AT THE TIME... ONLY I HAD NOT MORAL COURAGE ENOUGH TO RESIGN"

Grant on the Mexican-American War





a brigadier general, and made commander of the district of south-east Missouri. In February 1861, he scored the first real victory of the war for the Union by capturing rebel-held Fort Donelson on the Mississippi in Tennessee.

For his part, Lee was displeased with the Southern move toward secession, which he thought disastrous. He was forced to choose between his cherished Virginia home state and his country. Lee had even been marked out for the command of a Federal army being formed to return the secessionist states back under US control, but he still chose Virginia.

When his state voted to secede, Lee resigned from the US Army, saying that he "could take no part in an invasion of the Southern States." By then he had served in the army, including his time at West Point, for some 35 years.

General Lee and the Army of Northern Virginia

The South would have to fight an uphill battle, but it was not without advantages. At the start of the war, its soldiers were more motivated and its officer corps displayed far more talent on the battlefield, especially at the First Battle of Bull

The first major battle of the civil war, the First Battle of Bull Run, was a Confederate victory



MEXICAN-AMERICAN WAR

THE PRECURSOR TO CIVIL WAR ALLOWED LEE AND GRANT TO CUT THEIR TEETH ON THE BATTLEFIELD

The USA's war with Mexico, from 1846-48, had its origins in the question of the annexation of Texas. The state had won its independence from Mexico in April 1836 at the Battle of San Jacinto, in which Sam Houston and 900 Texans defeated a Mexican army under President Antonio Lopez de Santa Anna. Texas wanted to be admitted into the United States, and US President James K Polk was a firm believer in the USA's 'manifest destiny' to increase its territory from the Atlantic to the Pacific. He strongly favoured the annexation of Texas, and this was accomplished in 1845 by a resolution of Congress. But Mexico had other ideas, and had never truly reconciled itself to the loss of what it considered rightfully to be one of its own provinces. In April 1846, Mexico declared war on the USA after an American army commanded by General Zachary Taylor crossed the Texas border. The US Congress declared war on Mexico that May, but many anti-slavery

elements in the North saw it as a naked attempt to win more slave territory.

Taylor moved south rapidly, and won a succession of victories over tough Mexican opposition at Palo Alto, Resaca de la Palma and Monterrey that year. In February 1847, a strong Mexican army under Santa Anna was defeated by Taylor at the Battle of Buena Vista. Also in 1847, US forces under General Winfield Scott captured the port of Veracruz, and marched inland to Mexico City, which they reached in August 1847. Along the way, Scott met and defeated Santa Anna at Cerro Gordo that April, with victory owed in no small

part to the reconnaissance performed by Captain Robert E Lee, who discovered a route around the Mexican rear. Scott was effusive in his praise of Lee, calling him 'the very best officer that I ever saw in the field.' Ulysses S Grant, in the meantime, had been a supply officer with Taylor at the war's start, and then had accompanied Scott in his assault on Mexico City, where he fought bravely in taking enemy breastworks guarding the city. By September 1847, Mexico City had fallen to Scott, and the war was ended by the Treaty of Guadalupe-Hidalgo in February 1848, which saw the US take half of Mexico's territory.

"MANY ANTI-SLAVERY ELEMENTS IN THE NORTH SAW IT AS A NAKED ATTEMPT TO WIN MORE SLAVE TERRITORY"



After the storming of Chapultepec, Mexico City was occupied by American forces

AT WEST POINT

THE USA'S TOP MILITARY ACADEMY SCHOOLED MEN IN THE ART OF WAR

The United States Military Academy was established at West Point, New York, by President Thomas Jefferson to provide the young nation with professional officers educated in the military sciences. From then until the outbreak of civil war, West Point produced many of the USA's most illustrious soldiers.

While at West Point, an institution with notably strict discipline, Lee managed to graduate without even one demerit for an infraction of its disciplinary code during his four years there, a rarity among cadets. He graduated in second place in his class, and this enabled him to obtain a commission in the army's much sought-after Corps of Engineers.

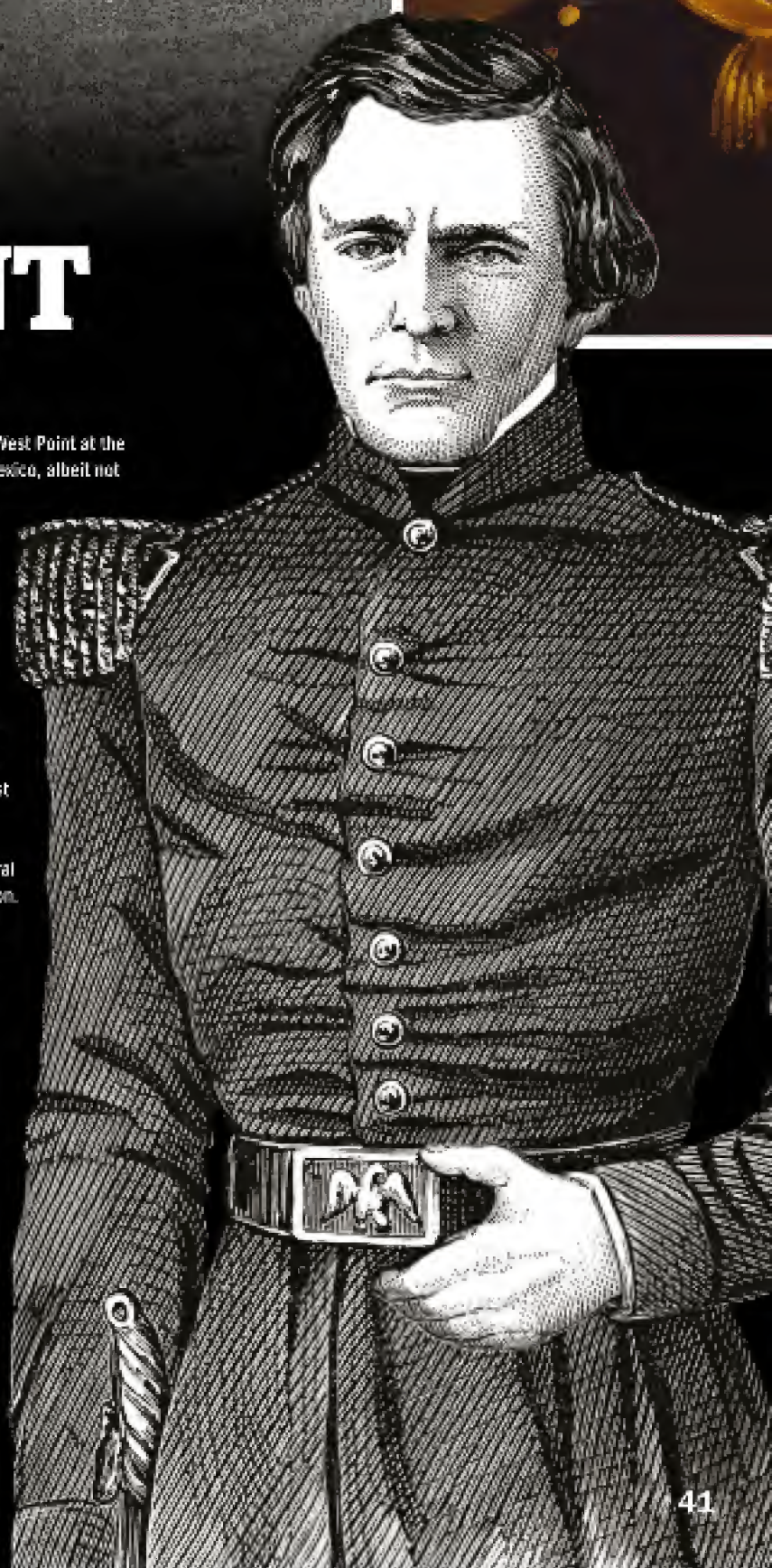
After exemplary service in Mexico, which garnered him no fewer than three brevet promotions in 1847, Lee would busy himself constructing fortifications. But Lee's military reputation was so high that he was brought back by the academy in 1852 to become its superintendent. Lee would bring his wife, Mary Anna Randolph Custis Lee, along with their seven children, to the Point when he took up his duties there.

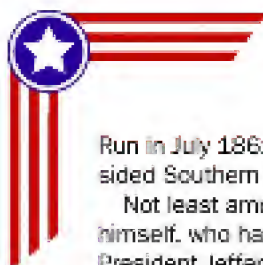
Grant's time at the Point was a different matter entirely. He was never confident of his chances of making it through the academy's gruelling curriculum, but went anyway because he thought it would give him a chance to travel and see the USA's biggest cities, which then were New York and Philadelphia. "A military life had no charms for me, and I had not the faintest idea of staying in the army if I should be graduated, which I did not expect," he said.

As a member of the class of 1843, Grant was an undistinguished student, and he wasted a good deal of his time reading novels instead of studying. His best subject, horsemanship, was not academic at all. Obtaining one of the coveted spots with the Corps of Engineers was too ambitious for Grant, with his mediocre grades, and so upon graduation he was commissioned as a brevet second lieutenant of the infantry.

Though Lee and Grant were never at West Point at the same time, their paths would cross in Mexico, albeit not on the battlefield. On one occasion, an unkempt and dust-covered Brevet Captain Grant went to General Winfield Scott's headquarters to make his report. His appearance was so poor that he was scolded by one of Scott's staff officers, none other than Lee. "I feel it is my duty, captain," Lee said, "to call your attention to General Scott's order that an officer reporting to headquarters should be in full uniform." Though this was perhaps not the warmest of encounters between two men who would go on to hold such important commands, it highlights one of the central tragedies spawned by Southern secession. Graduates of West Point, many of whom had served side by side in the Mexican-American War, would fight against one another in the civil war.

"THOUGH LEE AND GRANT WERE NEVER AT WEST POINT AT THE SAME TIME, THEIR PATHS WOULD CROSS IN MEXICO"





Run in July 1861, which was an entirely one-sided Southern victory.

Not least among these officers was Lee himself, who had been serving as Confederate President Jefferson Davis's military adviser since early 1862. His future opponent commanding the Army of the Potomac, Major General George B. McClellan, was an able trainer of soldiers but was also extremely cautious and lacked vigour in the field. Davis placed Lee in command of the Army of Northern Virginia on 1 June 1862, after its previous commander, General Joseph Johnston, had been wounded in battle.

Few appointments to command have been of more importance. Though greatly outnumbered by McClellan, Lee attacked him again and again, and in what became known as the Seven Days Battles in June-July 1862, drove the larger Army of the Potomac away from the Confederate capital of Richmond, Virginia. At the Second

Battle of Bull Run on 30 August, he hurled the Union Army of Virginia under General John Pope back towards Washington.

Lee next took the Army of Northern Virginia into Union territory. On 17 September, he fought McClellan to a standstill at Antietam, Maryland, where both sides took horrendous casualties in the civil war's bloodiest single day. President Lincoln became so disgusted with McClellan's dithering failure to pursue Lee after the battle that he removed him from command in November 1862 and replaced him with Major General Ambrose Burnside.

Lee retreated back to Virginia, but though he had badly bloodied the Federals, Lincoln also got something he had long been waiting for: Antietam had been a victory, at least of a sort, and Lincoln issued the Emancipation Proclamation, which declared that all slaves in rebel territory were now free. Though real

freedom for the slaves of the South would be a long time in coming, the president had reframed the conflict into one in which the Union now had moral superiority over the slave-holding states of the rebellious Confederacy.

It helped Lee that his opponents were not of his calibre. He humiliated Burnside at Fredericksburg on 13 December, and then devastated Hooker's gigantic army at Chancellorsville in May 1863. However, his valiant soldiers of the Army of Northern Virginia were also suffering heavy casualties. This was a consequence of Lee's offensive spirit, always seeking to attack, but it cost his army dearly. While it would be far wrong to call Lee a butcher, the Army of Northern Virginia took more than 10,000 casualties at Antietam, 5,300 casualties at Fredericksburg, and more than 13,000 casualties at Chancellorsville – losses it could ill afford.

Lee at Gettysburg

While Lee's tactical acumen and battlefield sangfroid have been rightly praised, his strategic vision has occasioned a more nuanced view, and

"IN GRANT, LINCOLN HAD FINALLY FOUND A GENERAL HE COULD RELY UPON"

LEE AND GRANT'S KEY BATTLES

AS THE CONFLICT RAGED ON, THE GENERALS TRADED VICTORIES IN SPECTACULAR STYLE

The generalship of Lee and Grant featured detailed planning as well as an ability to react to unforeseen opportunities on the battlefield. Both were forceful commanders who were unafraid to take heavy casualties to win battles. Grant was often called a 'butcher' because of the costly battles that he fought, but unlike many other Union generals, he was never afraid to give battle. Whereas most Federal commanders would fight and then retire some distance to let their soldiers recover, Grant would not retreat, but keep on attacking.

In battle, Grant was always able to remain calm, and this reassured his officers. "The chief characteristic in your nature," William T. Sherman wrote to him, "is the simple faith in success you have always manifested... you go into battle without hesitation... no doubts, no reserve... this made us act with confidence."

Lee was even more aggressive than Grant, perhaps because with his small army he could not afford to rely upon superior numbers or attrition to win a battle. Also, at least

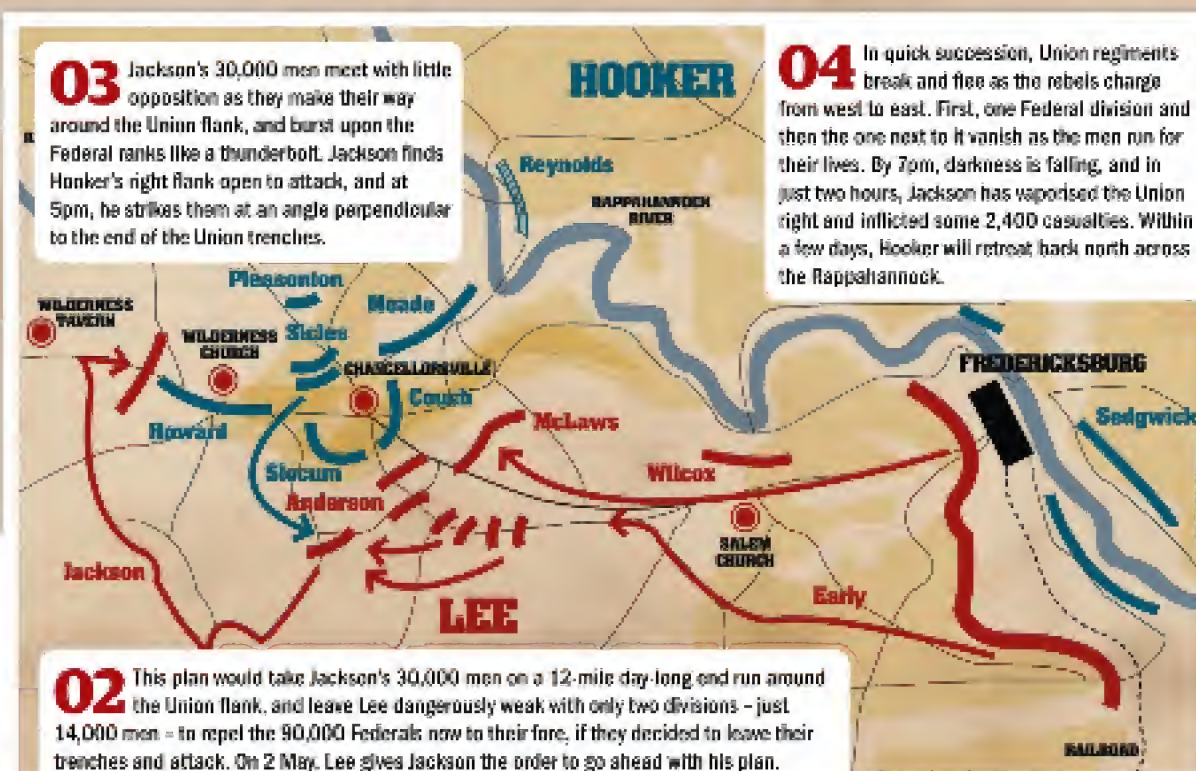
in the early years of the war, Lee had the advantage of more capable subordinates, especially Stonewall Jackson. This would have meant nothing, however, had Lee been unwilling to listen to them and accept their advice. It was Jackson who came up with the plan to strike a hammer blow against Federal troops at Chancellorsville. Lee let him execute it and the result was devastating to the enemy. But Lee's offensive instinct could hurt his own army too, since even in victory his battles were always bloody affairs for his troops.

CHANCELLORSVILLE: LEE'S MASTERPIECE



The Chancellorsville campaign had begun with much confidence, at least on the part of Union General Joseph Hooker. With a vast preponderance in men and material, in late April 1863 Hooker's Army of the Potomac moved south across the Rappahannock River. Hooker did this to force Lee, who was in an entrenched position along the river just south of Fredericksburg, into the open where the much larger Union army of 120,000 would crush Lee's Army of Northern Virginia, which was just half the size.

01 Instead of attacking Lee, Hooker sets his men to digging in around the town of Chancellorsville. General Jeb Stuart's cavalry brings word to Lee that Hooker's right-wing entrenchments are utterly exposed. Jackson wants to swing around left and crush them by a flank attack that will shatter the vulnerable Yankee line.



even brought him criticism. Lee tended to fight battles in a very aggressive manner, meaning he often incurred severe casualties even when winning. These were losses that could not be made good with the same speed as the more populous North could with its own.

It was Lee's decision to invade Pennsylvania, a Northern state, that led to the Battle of Gettysburg, in which the Army of Northern Virginia took on a much larger and improved Army of the Potomac. His boldness saw him fight a three-day battle from 1-3 July 1863, in which his troops were ground down by Federal soldiers. The action culminated on 3 July with Pickett's Charge, which failed and resulted only in the destruction of Lee's last fresh division, which took some 7,000 casualties.

"It is all my fault," Lee said to his exhausted troops after the failure of Pickett's Charge. Lee had lost one third of his army of 75,000, some 28,000 men, in just three days. Union General



Right: In this painting titled 'First at Vicksburg', the Union 1st Battalion, 13th Infantry, can be seen planting its colours on Confederate positions

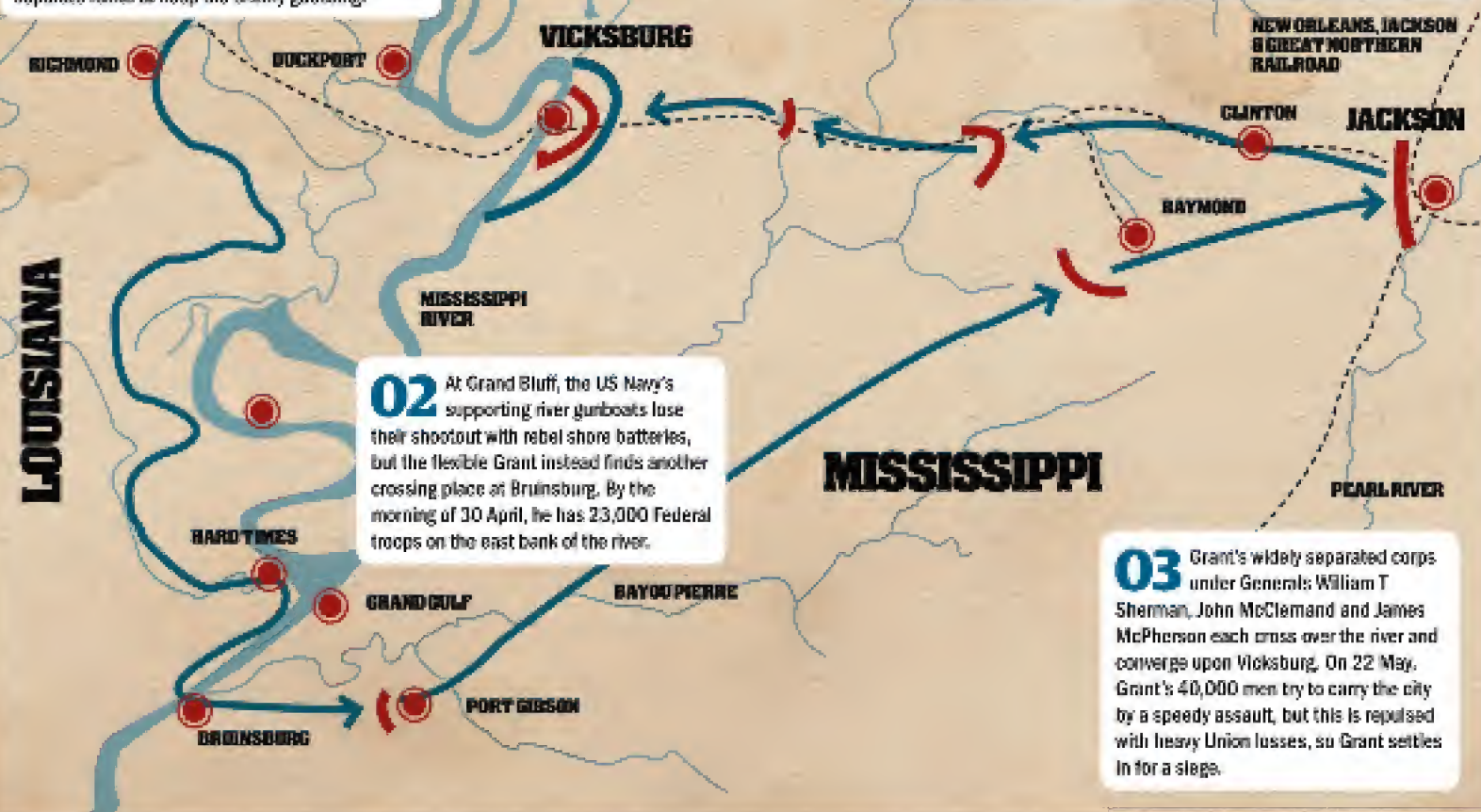
THE FALL OF VICKSBURG: GRANT ON THE MISSISSIPPI

In the west in early 1863, Grant, commander of the Army of the Tennessee, had been stymied for months in his attempts to take the city of Vicksburg, Mississippi. It was strongly fortified and commanded the river from atop a high bluff above. Grant would have to get to terrain more suited to offensive operations against the city, but these could only be found to the south and east, on the other side of the Mississippi.



01 Grant's plan was to forego attacking from the north, and instead move his army 400 miles south, cross the mile-wide river from west to east, and strike at Vicksburg from the rear. To distract the Confederates from his all-important crossing at Grand Gulf, Grant would execute three separate feints to keep the enemy guessing.

04 The Federal noose grows ever tighter around the 20,000 rebel troops in Vicksburg, as Confederate relief efforts over the next few weeks come to naught. Starving, Vicksburg surrenders itself to Grant on 4 July. With the fall of Vicksburg, the Union now controls the length of the Mississippi, and the rebellion in the western Confederate states has been dealt a death blow.



02 At Grand Bluff, the US Navy's supporting river gunboats lose their shootout with rebel shore batteries, but the flexible Grant instead finds another crossing place at Bruinsburg. By the morning of 30 April, he has 23,000 Federal troops on the east bank of the river.

03 Grant's widely separated corps under Generals William T. Sherman, John McClernand and James McPherson each cross over the river and converge upon Vicksburg. On 22 May, Grant's 40,000 men try to carry the city by a speedy assault, but this is repulsed with heavy Union losses, so Grant settles in for a siege.



George G. Meade's 90,000-man Army of the Potomac had held better and more defensible terrain from the beginning, and the overly aggressive Lee obliged him by attacking into the teeth of Federal guns. His subordinate officers had urged him not to attack, but Lee would hear none of their caution. "The enemy is there," he said, right before ordering Pickett into the attack on the third day, "and I am going to strike him."

Despite hurling his men at the Federal position, bluecoat losses in the battle were, uncharacteristically, lighter than Lee's, just 25,000. The needless invasion of Pennsylvania had accomplished nothing except the death of thousands of Lee's and Meade's soldiers, and victory for the South was further away than ever. Lee may have missed the assistance of Stonewall Jackson, but had Jackson survived long enough to have taken part at Gettysburg, he was just one man, and he and Lee could not overcome the insuperable advantages held by the North in men and resources.

Grant in command

In Grant, Lincoln had finally found a general he could rely upon to take the fight to the enemy.

"I can't spare this man," Lincoln had once said of Grant, "he fights." In March 1864, Grant was promoted to the resuscitated rank of lieutenant general and made commander of all Union armies, comprising some 550,000 men. It was now his mission to take all of the manpower and material advantages that the North had and use them to destroy the Confederacy. He was unafraid to give battle, knowing that the key to victory was defeating Confederate armies, whose losses could not be easily replaced. So he would make the rebels bleed, even though it cost his own troops terribly too. The Federal armies under Grant's command took stunningly heavy casualties in the Wilderness, at Spotsylvania Court House, North Anna and Cold Harbor in May-June 1864, but so did the Army of Northern Virginia. The defeat of the Confederacy required the death of its armies, which were still skilled and potent.

Grant's willingness to fight helped him past what might have sunk his hopes of retaining his command.



A President Grant election campaign hat from 1872

"GRANT HAD EFFECTIVELY PINNED LEE DOWN, AND THROUGH CONSTANT ATTRITION, THE SMALL CONFEDERATE ARMY OF NORTHERN VIRGINIA WAS WHITTLED AWAY"

TRUSTED LIEUTENANTS

THE MEN WHO MADE THEIR LEADERS GREAT

Both Grant and Lee would have the benefit in wartime of extremely able subordinates. For Grant, this was William Tecumseh Sherman, a fellow classmate at West Point military academy. Like Grant, Sherman had resigned from army service to pursue a civilian career, in banking, with mixed results.

The ill-tempered Sherman's early civil war career was less than splendid. He was aghast at the problems he encountered with inept, ill-trained volunteers and overly inquisitive reporters. The press made him appear to be mentally deranged, and he was relieved of command. He later found himself back in the war leading a division under the overall command of Grant at Shiloh in April 1862. Grant and Sherman would thereafter form a partnership of war and take Vicksburg on the Mississippi the next year.

The bond between Sherman and Grant was unshakable. Forged in the trying times in the beginning of the war that both men experienced, they were the closest of comrades. "He stood by me when I was crazy," Sherman would say in jest, "and I stood by him when he was drunk; and now, sir, we stand by each other always."

Lee was blessed with the aid of Thomas "Stonewall" Jackson, a general whose military acumen was unsurpassed on either side of the war. Like Lee, Jackson was a Virginian, born in Clarksburg in 1824. His parents died while he was still young, and he was raised by an

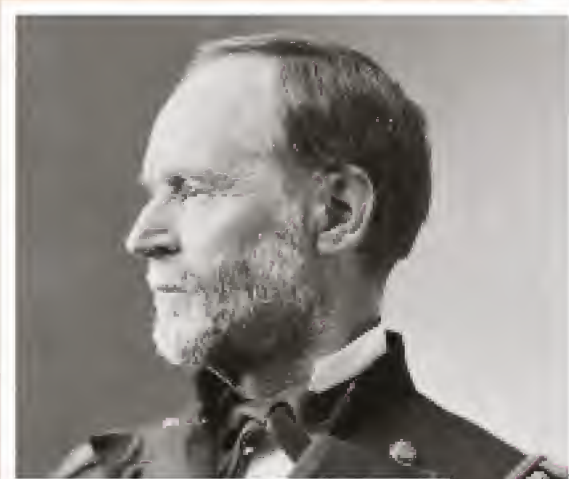
uncle. The military life appealed to him, and he was admitted to West Point's class of 1846.

He saw service during the Mexican-American War as an artillery officer and his performance was so exemplary that he was rapidly promoted from brevet lieutenant to brevet major. In 1851, he resigned from the army and took a teaching position at the Virginia Military Institute, where he taught philosophy, optics and artillery tactics. He was still teaching there when war came.

Jackson was personally opposed to secession, and though he owned six slaves, was not pro-slavery in any meaningful sense. Nevertheless, he followed his home state of Virginia out of the Union and into war, when it came. Jackson and the First Virginia Brigade he commanded at First Bull Run in July 1861 both earned the moniker "Stonewall" for their stalwart defence against a furious Federal assault.

Top right: Union General William Sherman succeeded Grant as the Union commander in the western theatre of the war in 1864

Right: Confederate General Stonewall Jackson was responsible for the envelopment of Union forces at the Battle of Chancellorsville



early in the war. He had a drinking problem of uncertain severity, with much depending upon the observer. Sherman was well aware of Grant's penchant for alcohol, as were many others, but believed that it did not hinder Grant. Though Grant "would occasionally drink too much," Sherman wrote, "when anything was pending, he was invariably abstinent of drink." President Lincoln is said to have wished to send a barrel of the same whiskey imbibed by Grant to his other generals to get them to fight as hard.

The beginning of the end of the rebellion

In June 1864, Petersburg, Virginia – a vital rail junction through which the bulk of the Confederacy's capital of Richmond's supplies moved – was besieged by Grant. If the city was to be captured, Lee would have to either fight Grant in open country or allow Richmond to fall to Union forces. The Army of the Potomac tried and failed to take Petersburg by storm, and then settled down into a formal siege with trenches dug all around it. Though the bloody siege would last for months, Grant had effectively pinned Lee down, and through constant attrition, the small Confederate Army of Northern Virginia was whittled away.

Meanwhile, in the west, Sherman was hard at work driving the rebel army of General Joseph Johnston out of Tennessee and into Georgia, where he took Atlanta. The 62,000-strong Army of the Tennessee then began its great march through Georgia and the Carolinas in the middle of November 1864. Rebel armies could always retreat away from him, and destroying them was next to impossible, so Sherman had to destroy the South's ability, and even willingness, to make war. Having already taken Atlanta, he forgot about his supply lines and started out into untouched Georgia countryside, where his men would live off the land. Along a broad swathe of territory 60 miles wide, bluecoats burned farms and crops, ripped up railway tracks, and caused all sorts of havoc among an outraged but impotent Southern public. Lee, still beset by Grant at Petersburg, could do nothing to help.

After a movement of some 250 miles, Sherman's men arrived at Savannah, on the Atlantic coast, on 21 December. Georgia was a ruin, and out of the war. From Savannah, Sherman's men continued on through the Carolinas, burning as they marched. This was "total war". The South could not withstand much more of the same.

Back at Petersburg, the siege ground on, consuming more and more men like coals in a furnace. By early April 1865, Lee's position in the city was untenable, and on 1 April, he withdrew his troops, and warned the Confederate government in Richmond that he could no longer protect the capital. On 2 April, Grant mounted an attack on the weakened rebel defence works, and his 60,000 men rolled over the mere 20,000 left behind by Lee. Petersburg fell that same day, and Richmond was in Grant's hands by the next. The matter of most importance to Grant now was defeating Lee's Army of Northern Virginia, which was in the open and vulnerable. Lee understood better than anyone else just how badly his ill-fed and poorly clad men had suffered, and that his army was surrounded by Union troops. The end of the Army of Northern Virginia was at hand.

THE BALANCE OF POWER, NORTH AND SOUTH

THE GENIUS OF GENERALS ALONE WASN'T ENOUGH FOR VICTORY

The North had tremendous latent advantages over the South. It had far more people, and thus could both put more soldiers into the field and replace losses more easily. The Union also possessed three times as much railway track as the South. Its industrial development far surpassed that of the South, which had retained a largely agrarian economy. The North could make most of its own muskets and cannons, for example, and could buy arms from Europe to make up any shortfall. The US Navy's naval blockade of Southern ports would choke off almost all Confederate imports except for a handful of blockade runners of negligible significance.

Diplomatically, the support and recognition that the Southern states expected from Europe, especially Britain, never materialised. This was mainly because of the Southern over-estimation of the importance of cotton. Many Southerners had thought that when the supply of cotton from the South was disrupted by war, the shortage would cause the British to bring about a negotiated settlement that resulted in the recognition of the Confederacy's independence. Instead, British importers found other sources for cotton, and the South was left without allies or significant diplomatic support.

Right: The tactically inconclusive Battle of Spotsylvania Court House saw 32,000 Union and Confederate casualties



Appomattox Court House

On 9 April 1865, after an exchange of messages, Grant and Lee met at the McLean house in Appomattox Court House to formalise the surrender of the Army of Northern Virginia. In a grand irony, Major Wilmer McLean's farm in Manassas had been fought over at the war's beginning back in April 1861 during the First Battle of Bull Run. The major had taken his family to Appomattox, where he thought they could avoid the rest of the war. Now, in April 1865, it was ending in his home. Arriving first, Lee, perfectly attired, as was his custom, rode up on his horse, Traveller, to the McLean house where he would meet Grant. Arriving afterwards, Grant, by contrast, was dressed very simply, and was

not even wearing a sword. Sat in the parlour, they talked a bit about their experiences in Mexico, decades before, and then at Lee's prompting, got down to business.

Grant's terms were that Lee's surrendered officers and men should be released on parole, never to fight again until exchanged (which would never happen as the war was over) and that the rebels' weapons would be turned over to Federal forces. Lee agreed, and their terms were put in writing. As Lee departed after the proceedings were concluded, Grant and the other Union officers present raised their hats in salute. Lee did likewise, and rode back to his army. Lee's war was over, and soon the civil war would be at an end too.

Below: Men collect the dead after the Battle of Gettysburg





BECOMING A SUPERPOWER

Having successfully established itself on the global stage, the United States sought to become one of the leading nations in the world

48 The Spanish War

The US's 'splendid little war' was over in a few months, but it allowed them to become a real power on the world stage

50 1917: America goes to war

After years of neutrality, the United States entered World War I with a flurry of diplomatic declarations and patriotism

58 Japan's First Strike

On 7 December 1941, Japanese planes launched an attack on Pearl Harbor, bringing the US into World War II in the process

64 The Flying Tigers

How the outnumbered fighter aces of the American Volunteer Group defied Imperial Japan in war-torn China

74 Birth of the bomb

The development and use of the atomic bomb against Japan during World War II changed the course of human history

80 Hero of the Korean War

Benjamin F Wilson led the charge in an uphill struggle, single-handedly taking on communist forces in Korea to protect his platoon

84 The Vietnam War

Re-examining the two-decade Cold War conflict that ended in defeat for the Americans, communist victory and the deaths of millions

90 How the Cold War was fought

Forget open warfare and traditional combat, the Cold War was underhand, manipulative and competitive – yet just as dangerous as any major conflict

96 In the eye of Desert Storm

Operation Desert Storm hit Iraq like a force of nature and heralded its decline from a regional power to a failed state, yet the story from inside Saddam's regime is rarely told







This illustration shows US ships destroying their Spanish adversaries in Manila Bay.

THE SPANISH WAR

The US's 'splendid little war' was over in a few months, but it allowed them to become a real power on the world stage

At a time when Europe was busy waging wars and establishing empires in the late 19th century, a growing US wanted a piece of the action. Their neighbours to the south, Cuba, were themselves rebelling against their colonial occupier, Spain. Desiring to take a more prominent role in global politics, the US – led by President William McKinley – threw its hat into the ring, deciding to aid its Caribbean neighbour.

For Cubans, the situation was nothing short of dire. Spain held a monopoly on their bountiful sugar plantations, and its people were treated with cruelty. One Spanish general, Valeriano (locally known as 'the Butcher') herded Cuban people into so-called 'reconcentration areas' on the outskirts of towns, with inadequate food and no sanitation, shelter or medical care. As a result thousands died.

Spread across the front pages of US newspapers, this shocking revelation tugged at the heartstrings of ordinary Americans. Perhaps more importantly, though, the simmering unrest in Cuba was threatening US business interests on the island, which were valued at a hefty \$50 million. Reluctantly, the USS Maine was dispatched to Havana in December 1897 to 'protect citizens and property'.

A few months later the warship exploded under very mysterious circumstances while it was in port. With the loss of over 260 crew members, the American public was livid and blamed Spain for sinking her with a torpedo.

The battleship USS Maine docked in Havana Harbor



While the president wanted to preserve peace with Spain, the newspapers cried 'Remember the Maine, to hell with Spain'.

Tensions between the two nations had reached boiling point. On 27 March 1898, Spain was given an ultimatum – permit Cuba independence or face war with the mighty US navy. The old European imperial power found itself in quite a quandary. While they were massively unprepared for conflict with America, the Spanish public would not stomach losing one of their most valuable colonies. Spain attempted to negotiate and end Cuba's reconcentration areas, but granting full independence was a step too far. Since the two

sides would never agree, war was declared on 25 April 1898. The US raised 125,000 military volunteers in a single day.

Across the Pacific Ocean, the Philippines was also preparing for war. Another Spanish colony that had a strained relationship with its Iberian occupiers, rebels hoped that a US presence on their archipelago would help them win freedom for the nation.

On 1 May 1898, the US navy defeated the entire Spanish naval fleet anchored in Manila Bay in a matter of hours. By July there were 11,000 American troops stationed in the Philippines. Alongside them were Filipino guerrilla forces led by Emilio Aguinaldo, who



Teddy Roosevelt led his regiment of 'Rough Riders' at the Battle of San Juan Hill, Cuba



Filipino soldiers stand to attention in the fight against their Spanish occupiers, circa 1896



Emilio Aguinaldo during his presidency of the Philippines, which lasted from 1899 to 1901

ALOHA TO ANNEXATION

PAVING THE WAY FOR THE 50TH STATE

The Philippines was not the only unintended acquisition of the Spanish-American War. The Polynesian Islands of Hawaii, 2,500 miles away from California, had long been a topic of contention in the US. Many white businessmen had become rich from exploiting Hawaii's natural resources, struggling for control with native Hawaiians who understandably resented their presence.

The US did feel that its business interests in Hawaii were threatened by other imperial powers, particularly Britain and France, but it was reluctant to take action. White plantation owners were keen for the US to annex the islands, but the native Hawaiians were strongly opposed to the idea of their ancestral homeland being ruled by an external power. American settlers on the islands had so far treated them very harshly, banning the expressions of Hawaiian culture.

When the last queen of Hawaii, Lili'uokalani, tried to restore some measure of power to her people in 1893, the so-called 'Committee for Annexation' (led by wealthy American businessmen) overthrew the monarchy. The US was initially against the move, asking that Lili'uokalani be restored to power.

However, with the advent of the Spanish-American War and the ascension of William McKinley, the US Government changed course. Believing it was now of paramount importance to have a base in the Pacific to protect its new colony, the Philippines, Hawaii was officially annexed on 7 July 1898.



Lili'uokalani attended Queen Victoria's Golden Jubilee as the official representative for Hawaii

"SPAIN WAS GIVEN AN ULTIMATUM - PERMIT CUBA INDEPENDENCE OR FACE WAR WITH THE US NAVY"

aided the Americans on the understanding that the Philippines would be free of imperial oppression once the war was won.

Meanwhile, things were going swimmingly for the US on the Cuban front. The US had destroyed the entire Spanish navy moored at Santiago on 3 July, leaving all their ships beached, broken or burning by the end of the day. While the US celebrated its own Independence Day glowing with success, Spain was now looking to France (a longtime ally of the Americans) to help them broker a peace.

With the Spanish defeated, the US took the opportunity to occupy the island of Puerto Rico, which Spain was eventually forced to forfeit along with an unnamed island in the Marianas.

Meanwhile, the question of the Philippines was playing on American minds. Cuba had gained independence, but as nobody had foreseen the Philippines joining the war, there was no plan for what would happen to the islands.

The US public was deeply divided. While some wanted to stick to their traditional policy of isolationism, others saw the Philippines as ripe for the taking. Rich in natural resources, occupying the Philippines would also give the US a vast base in the Pacific, allowing them to exert greater influence in Asia – and the world.

Despite his reservations, this proved to be a temptation McKinley could not resist. So, in the formal conclusion to the Spanish-American War, the Treaty of Paris (signed in December

1898) stipulated that the Philippines were to be annexed by the US for the token sum of \$20 million. However, this proved to be a controversial move, and when it came to be ratified in Congress it passed by just one vote.

This was only the first sign of trouble in the Philippines. Two days later, war broke out between Emilio Aguinaldo's fighters and stationed US troops. Initial skirmishes took place in Manila, where most of the American troops were based, but it soon spread across the country. For three devastating years the Filipino insurgents continued to fight the neo-imperialists on their land. They lost up to 20,000 troops and 200,000 civilians. US losses totalled 4,300, mostly from disease.

In just a year the US had seen its role transformed from an inward-looking nation to a deciding party in global affairs. Victory against Spain had been a much-needed boost, and it influenced US foreign policy actions for decades to come, culminating in its involvement in the unprecedented World Wars of the 20th century.



"IF THE UNITED STATES WERE TO HAVE A SEAT AT THE TABLE AND REAL INFLUENCE IN SHAPING THE POST-WAR WORLD, IT HAD TO INVEST WITH BLOOD AND TREASURE ON FAR-OFF BATTLEFIELDS"

Illustration: Joe Cummings



This graphic painting titled 'The Germans Arrive' depicts atrocities such as those perpetrated in Belgium during the offensive of 1914

ROAD TO THE FRONT

GERMAN ATROCITIES, ESPIONAGE AND UNRESTRICTED SUBMARINE WARFARE PUSHED THE UNITED STATES TO JOIN BRITAIN AND FRANCE IN THEIR STRUGGLE

When German troops attacked France in 1914, their breach of Belgian neutrality shocked the world, particularly as reports of atrocities in that country were published. Americans were appalled and favourable public opinion of Germany eroded appreciably.

In mid-1915, a stunning event brought the spectre of espionage and covert operations close to home for Americans. A German embassy official left his briefcase unattended on a New York City train, and its contents were made public, indicating a systematic effort to

conduct sabotage in Canada and foment unrest in the United States. Germany had assumed an aggressive posture with America.

On 7 May 1915, the Cunard passenger liner *Lusitania* was sunk by the German submarine U-20 off Ireland's Old Head of Kinsale, and 128 Americans were among the dead. The *Lusitania*'s sinking was one of numerous incidents amid Germany's policy of unrestricted submarine warfare. American public opinion galvanised against perceived German treachery.

1917 AMERICA GOES TO WAR

The American flag was first seen in WWI during the Battle of Vimy Ridge, where US soldiers charged the German lines with 'Old Glory' attached to their bayonets

After years of neutrality, the United States entered World War I with a flurry of diplomatic declarations and patriotism

Rather than a rapid, bold march to the sound of the guns in Europe, the entry of the United States into World War I was a slow, deliberate, at times grudging, slog – that is until early 1917.

President Woodrow Wilson had sought throughout his administration to maintain American neutrality during the horrific conflict, even successfully campaigning for his second term with the slogan: "He kept us out of war!" and somewhat ominously in the modern political climate: "America First"

In 1914, just weeks after the outbreak of war in Europe, Wilson addressed congress saying, "The United States must be neutral in fact, as well as in name, during these days that are to try men's souls. We must be impartial in thought, as well as action."

As a neutral nation, the tenuous American premise was simply that its financial institutions could loan money to any of the warring countries. American businesses could sell raw materials, food, finished goods and munitions to them as well. American merchant ships should be allowed to ply the waters of the troubled Atlantic Ocean without the fear of being intercepted or being torpedoed by German submarines.

Ties and tensions

Along with the practical considerations for his country, Wilson was obliged to acknowledge several significant points. The United States was a nation of immigrants. Citizens of British, German, Irish, Eastern European and other lineage maintained emotional and familial ties to their 'old countries', and perhaps even divided loyalties.

"The people of the United States are drawn from many nations and chiefly from the nations now at war," the president told Congress in August 1914. "It is natural and inevitable that some will wish for one nation, others another, to succeed in the momentous struggle. Such divisions among us would be fatal to our peace of mind and might seriously stand in the way of our duty as the one great nation at peace, the

one nation ready to play a part of mediator and counsellor of peace."

Strong isolationist sentiment augmented by a pacifistic element in government engendered vehement opposition to US involvement in World War I under any circumstances. Even Wilson's own Democratic Party was divided. A committed pacifist, secretary of state William Jennings Bryan, resigned his post in frustration in June 1915. Bryan believed that the president, hesitant though he was to commit his country to war, had turned a deaf ear to pacifist pleadings.

Socialist politicians expressed passionate opposition to American involvement in the war, with such inflammatory observations that on either end of the gun, ally or enemy, was an exploited worker. In the presidential election of 1912, socialist candidate Eugene V Debs had actually garnered six per cent of the popular vote.

Mothers moaned that they had not raised their sons to be soldiers. Meanwhile, titans of American finance and industry did in fact reap substantial profits from high interest loans and shipments of steel, machinery, nuts, bolts and bullets to the warring countries.

While the Preparedness Movement advocated a build-up of the US armed forces in anticipation of an America at war, interventionists argued that joining the conflict on the side of Great Britain and France, resulting in victory, would preserve trade and contribute to eventual stability around the world.

A distant dream?

Increasingly, Wilson was compelled to recognise the fact that the possibility of mediating a lasting peace was little more than an illusion. From a pragmatic standpoint, if the United States were to have a seat at the table and real influence in shaping the post-war world, it had to invest with blood and treasure on far-off battlefields.

Even more readily apparent was the simple fact that the American notion of neutrality was more an exercise in diplomatic wishful thinking.



Both Britain and Germany required imports of raw materials and other commodities to sustain their war machines and feed their people. Logically, each sought to deny the trans-Atlantic logistics lifeline to the other.

At the time, the British Royal Navy was the largest and strongest in the world. Almost from the outset, its strict blockade was pinching the German wartime economy. At the risk of damaging relations with the US, British warships stopped, searched and turned around American merchantmen bound for German ports. Protests from the Wilson administration backed the British down somewhat, but it was difficult to argue with the soundness of their strategy to strangle the enemy.

The German Navy lacked the resources in surface warships to impose a crippling blockade against the British Isles. However, a viable alternative did exist. Submarines, or U-boats, were relatively cheap to produce, and German shipyards could turn them out in meaningful numbers. A cordon of German submarines might well sink enough shipping, neutral or otherwise, to deprive Great Britain of the staples of war and work. Without cotton, for example, British mills would shut down. Without food, British tables would be empty.

The Sussex Pledge

In the autumn of 1914, Britain declared the entire North Sea a war zone. In retaliation, on 4 February 1915, the German Navy warned that enemy merchant vessels encountered in the waters around the British Isles would be sunk without warning and that it could not guarantee the safety of neutral shipping. Previously, maritime prize rules specified that submarines were to surface and merchant ships stopped on the open sea were to accede to being searched prior to sinking. Their crews were to be removed to safety. Only in cases of armed resistance or a persistent refusal to stop were submarines allowed to diverge from these rules.

On 28 March 1915, the German submarine U-28 torpedoed the British steamship *Falaba*, killing more than 100 people, including one American, mining engineer Leon Thrasher of Massachusetts. Protests were lodged with both the British and German governments. On 7 May, the Cunard passenger liner *Lusitania* was torpedoed by the submarine U-20 off the coast of Ireland, killing 128 Americans. On 19 August, the liner *Arabic* was sunk by U-24, where three Americans perished.

Although the circumstances of each incident, including German compliance with or disregard of the rules of engagement, is

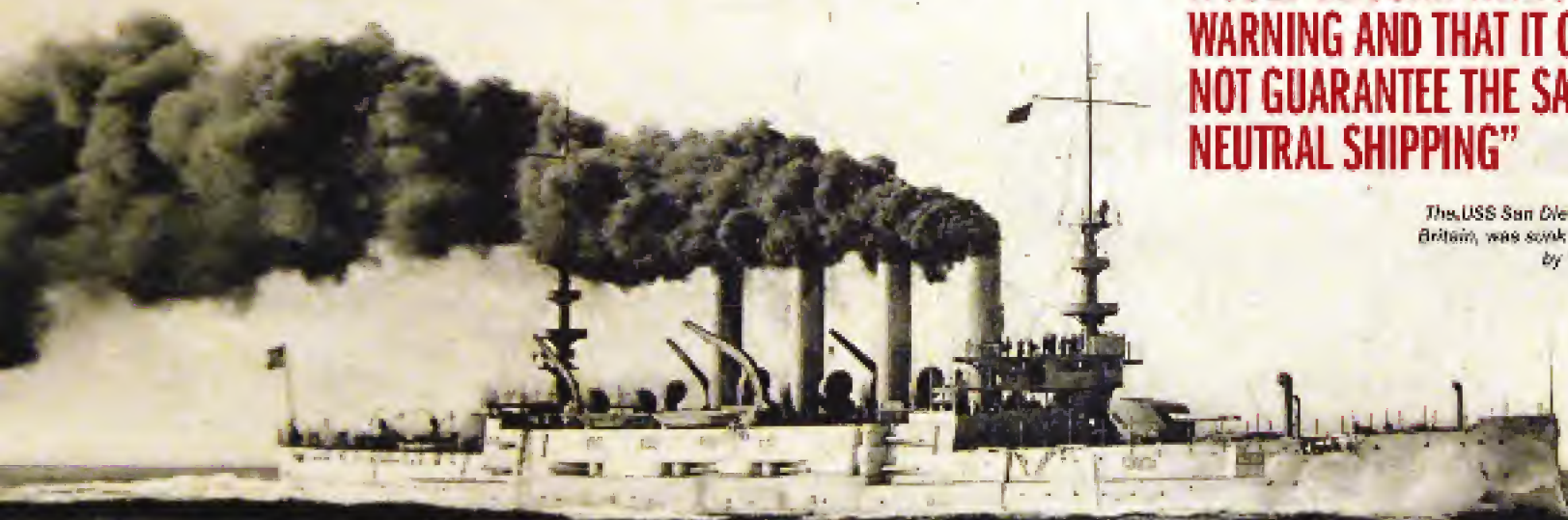
debated to this day, the US issued at least three stern warnings to Germany. Then, on 24 March 1916, the unnamed English Channel ferry *Sussex* was torpedoed and heavily damaged. Although no Americans were killed, President Wilson warned that the USA would break diplomatic relations with Germany if such attacks continued.

The result was the *Sussex Pledge*, which the Germans issued on 4 May 1916, stating that U-boats would refrain from targeting passenger ships, merchant ships would not be sunk unless they were thought to be carrying contraband, specifically munitions, and that U-boat captains would see to the safety of all aboard prior to sinking merchant ships.

The *Sussex Pledge* proved only a temporary solution to the opposing exigencies of war

"ON 4 FEBRUARY 1915, THE GERMAN NAVY WARNED THAT ENEMY MERCHANT VESSELS ENCOUNTERED IN THE WATERS AROUND THE BRITISH ISLES WOULD BE SUNK WITHOUT WARNING AND THAT IT COULD NOT GUARANTEE THE SAFETY OF NEUTRAL SHIPPING"

The USS San Diego, on route to Britain, was sunk by a mine laid by U-156 in 1918



THE FIRST TO FIGHT

AMERICANS FOUGHT FOR THE IDEALS OF FREEDOM BEFORE AND AFTER THEIR COUNTRY ENTERED WORLD WAR I

EDWARD MANDELL STONE



ENLISTED:
2 AUGUST 1914
A 1908 Harvard graduate, Stone enlisted in the

French Foreign Legion. By October, he was with a machine gun section in northern France. Wounded by shrapnel on 17 February 1915, he died 12 days later. Stone is considered the first American to die as a result of combat during World War I.

CHARLES SWEENEY



ENLISTED: 1914
A major in the US Army at the war's outbreak, and graduate

of the US Military Academy, Sweeney joined up with the French Foreign Legion and was seriously wounded. He received the *Croix de Guerre* and Legion of Honor for heroism in combat. He returned to the US Army in May 1917.

FRANKLIN JUDE GARY



ENLISTED: 1915
Major Frank Jude Gary of Sioux City, Iowa, enlisted at

Victoria, British Columbia, and served with the 67th Pioneer Battalion and 102nd Battalion of the Canadian Expeditionary Force. He received the Military Cross and Bar from King George V in London, was wounded at Ligny-Saint-Flochel and died on 12 September 1918.

EDMOND GENET



ENLISTED: 1915
Descendant of a French diplomat of the colonial period, Genet

enlisted in the French Foreign Legion while still serving in the US Navy. He later flew fighter planes with the Lafayette Escadrille and on 17 April 1917, became the first American pilot killed in action after the US declared war on Germany.

RAOUL LUFBERY



ENLISTED: 1914
Son of an American father and French mother, Lufbery enlisted in the

French Foreign Legion, transferred to the French Air Force, and in 1916 joined the Lafayette Escadrille, a squadron of American pilots in French service. Lufbery recorded 17 aerial victories and died plummeting from his aircraft on 19 May 1918.

CUNARD

EUROPE via LIVERPOOL
LUSITANIA

Fastest and Largest Steamer
now in Atlantic Service Sails
SATURDAY, MAY 1, 10 A.M.
Transatlantic, Fri., May 3, 5 P.M.
Oxford, - - - Sat., May 12, 10 A.M.
Tennant, - - - Fri., May 21, 5 P.M.
LUSITANIA, Sat., May 26, 10 A.M.
Transatlantic, Fri., June 4, 5 P.M.

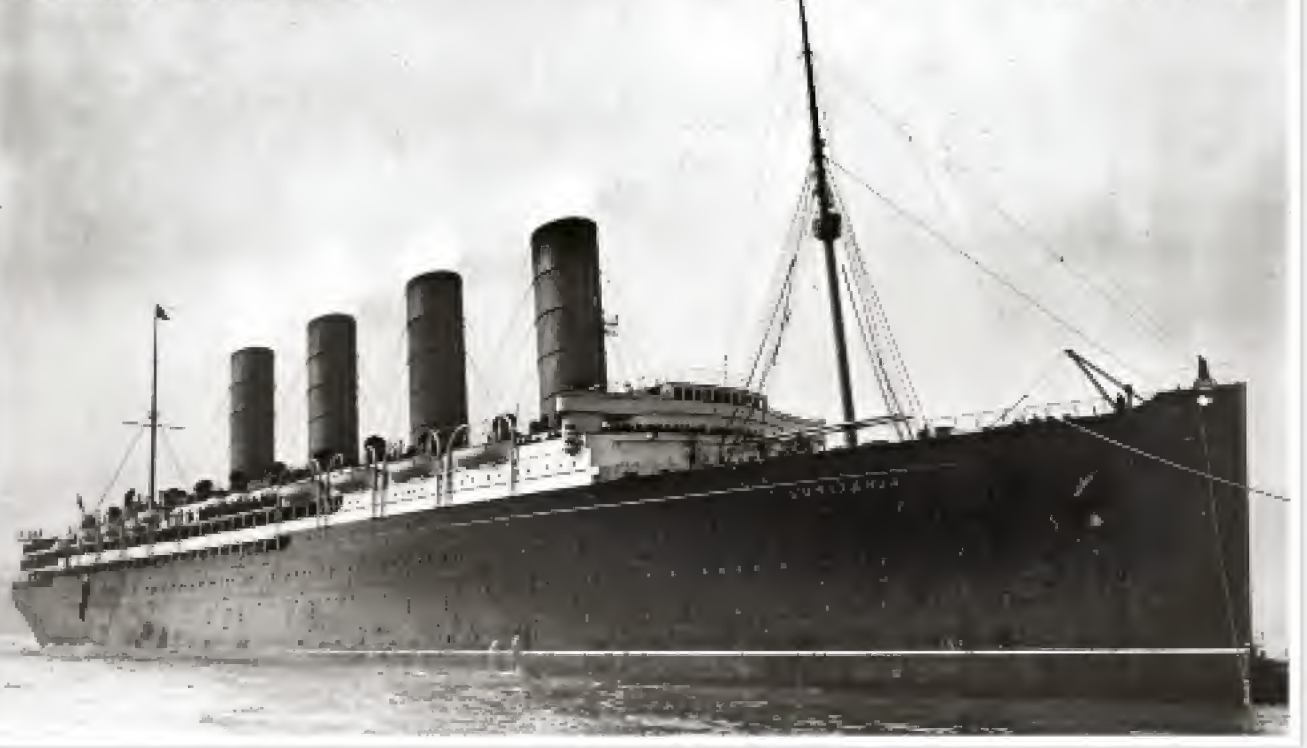
Gibraltar-Corru-Maple-Pharos
S.S. Carthage, Tues., May 15, Noon

NOTICE!

TRAVELLERS intending to
embark on the Atlantic voyage
are reminded that a state of
war exists between Germany
and her allies and Great Britain
and her allies; that the issue of
war includes the entire subject
of the British Isles; that, in
consequence, all persons sailing
from the Imperial German
Government, except those
of the flag of Great Britain, or of
any of her allies, are liable to
destruction in these waters and
that travellers sailing in the
war zone on ships of Great
Britain or her allies do so at
their own risk.

IMPERIAL GERMAN EMBASSY
WASHINGTON, D. C., APRIL 21, 1917

Left: A newspaper advertisement for the doomed passenger liner Lusitania bears the travel warning issued by the German government



The sinking of the liner Lusitania by German submarine U-20 on 7 May 1915, pushed the United States closer to war

and the US demand for free navigation of the seas and other guarantees. The sinkings of the Lusitania and Arabic had roused American public opinion against Germany, and further provocative actions would certainly lead to a US declaration of war. Nevertheless, the German government reasoned that the United States had already compromised its neutrality by continuing to trade with Britain.

One critical fact loomed large in the pro-British shift that was gaining momentum: the Germans were killing Americans on the high seas, the British were not.

Days of reckoning

On 9 January 1917, Kaiser Wilhelm II convened a war council at Pless Castle in Silesia. Paramount among the topics discussed was a proposal from the highest echelon of the German Navy. In December 1916, Admiral Henning von Holtzendorff had submitted a memorandum in favour of the resumption of unrestricted submarine warfare. Holtzendorff stated his case forcefully, citing American neutrality as a sham. Unfettered, German U-boats, a total of 79 oceangoing and coastal types, could sink enough shipping to bring Britain to its knees within five months.

The admiral concluded, "Upon the declaration of unrestricted submarine warfare, the United States government will once more be compelled to make a decision whether or not to take the consequences of its previous position vis-à-vis the unrestricted submarine warfare. I am absolutely of the opinion that war with the United States is such a serious matter

that everything has to be undertaken to avoid it. Fear of a diplomatic rupture, however, should not lead us to recoil from the use of a weapon that promises victory for us."

On land, the German Army was experiencing some supply shortages. Representatives of General Paul von Hindenburg, the chief of the General Staff, expressed his support for the renewed initiative. The German people were also growing restive as the privations of war weighed heavily on them. Holtzendorff argued that the war "...required a decision before the autumn of 1917." Time was of the essence.

The primary dissenter among those gathered was Chancellor Theobald von Bethmann-Hollweg. Despite the confidence of the German military, Bethmann-Hollweg argued that American entry into the war was a certainty with the resumption of unrestricted submarine warfare and that it would surely lead to the defeat of Germany. He later declared in his memoirs: "No nation will stand for not winning a war when it is convinced it can win."

The chancellor dutifully delivered the news to the Reichstag, and the German ambassador in Washington, DC, informed Wilson on 31 January 1917 that unrestricted submarine warfare would resume the following day. The president was taken aback, and any presumption that Germany still sought a mediated peace was swept away. An American newspaper later proclaimed, "The only difference between war and peace now is that we are not fighting back when the Germans are attacking us."

"UNFETTERED, GERMAN U-BOATS, A TOTAL OF 79 OCEAN-GOING AND COASTAL TYPES, COULD SINK ENOUGH SHIPPING TO BRING BRITAIN TO ITS KNEES WITHIN FIVE MONTHS"



Above: General John 'Blackjack' Pershing, commander of the American Expeditionary Force, arrives in France in the spring of 1917

Below: Paying his respects, General John J. Pershing salutes the grave of the Marquis de Lafayette





On 3 February, a U-boat torpedoed and sank the American merchant ship *Housatonic*. Wilson immediately severed diplomatic relations with Germany. On the 25 February, the Cunard liner *Laconia* was sunk by U-50 off the south-western tip of Ireland – an American woman and her young daughter were killed. The next day, Wilson went to congress to request the authority to arm American merchant ships against attack, itself an act of war according to international law. Although the consensus among historians is that the measure would probably have passed had it reached a vote, a group of anti-war senators succeeded in filibustering the measure. In response, President Wilson issued an executive order to arm the merchantmen.

The German onslaught continued and by the end of March 1916, five more American-flagged merchant vessels had been lost after they were attacked by U-boats. Wilson was rapidly approaching a political crossroads.

The Zimmermann telegram

Compounding Wilson's woes was the shocking disclosure of a diplomatic communication called the Zimmermann Telegram. On 16 January 1917, British Royal Navy cryptanalysts in the top-secret Room 40 cryptographic office decoded a communication from German Foreign Minister Arthur Zimmermann to Heinrich von Eckardt, the German ambassador to Mexico. Its content was not only inflammatory, but also a potential *casus belli* for the United States.

Coinciding with the resumption of unrestricted submarine warfare, the communication gave von Eckardt specific

"PRESIDENT WILSON WAS RELUCTANT TO ASK CONGRESS FOR A DECLARATION OF WAR"

instructions in the event that the United States entered World War I on the side of Britain and France. "We make Mexico a proposal of alliance on the following basis: make war together; make peace together, generous financial support and an understanding on our part that Mexico is to reconquer the lost territory in Texas, New Mexico and Arizona."

The startling telegram went on to urge von Eckardt to discuss with Mexican Head of State, Venustiano Carranza, the possibility of persuading Japan to switch sides as well. Carranza considered the offer and asked senior army officers to evaluate the possibility of a successful military campaign to reclaim the territory that had been lost to the US in the war of 1846-1848. As German assistance was far from certain due to the British blockade, the Mexican government also recognised that defeat would be devastating and declined to enter into an alliance.

Initially, the British government refrained from presenting the Zimmermann Telegram to the Wilson administration, fearing it would disclose to the Germans that their diplomatic code had been broken. However, Admiral William Reginald Hall, head of Room 40, presented Edward Bell, the secretary of the US embassy in London, with the text of the telegram. At first, Bell refused to believe it was authentic, but once convinced he handed it

to Walter Hines Page, the US ambassador to Great Britain.

After British foreign minister Arthur Balfour presented Page with the actual intercept, along with its translation in German and English, President Wilson was notified on 24 February. Two days later, the same day he had gone to congress to request authority to arm American merchant ships, Wilson made the content of the Zimmermann Telegram public. The banner headline of the 1 March edition of the *New York Times* blared, "Germany Seeks An Alliance Against Us." Although support for a declaration of war against Germany was far from universal, public opinion that was both anti-German and anti-Mexican reached an alarming crescendo.

March toward mobilisation

Despite the revelation of the Zimmermann Telegram and the resumption of unrestricted submarine warfare, President Wilson was reluctant to ask congress for a declaration of war. He did not call a cabinet meeting to discuss the prospect until 20 March. Although he had worked so hard to keep the United States neutral after the tragic events of 1915, he had little choice two years later.

On 2 April 1917, the president addressed congress, formally requesting a declaration of war against Germany. "Property can be paid for; the lives of peaceful and innocent people cannot be. The present German submarine warfare against commerce is warfare against mankind." He stated, "I advise that congress declare the recent actions of the Imperial German Government to be, in fact, nothing less than war against the government and people of the United States. Neutrality is no longer

AMERICA FIRST



President Woodrow Wilson ran for office under the ominous pledge 'America First' as part of his isolationist policy.

IN FOREIGN SERVICE

BEFORE THE UNITED STATES DECLARED WAR, THOUSANDS OF AMERICANS HAD ALREADY ENLISTED IN THE ARMED FORCES OF ALLIED NATIONS

Although many of them were technically violating the law of the land, up to 50,000 Americans joined the Canadian Army prior to their own country's entry into World War I. Others wore British or French uniforms in the trenches or flying combat aircraft.

Among the best known expatriate Americans were those of Canada's American Legion, the 97th, 211th, 212th, 213th and 237th Battalions of the Canadian Expeditionary Force. Recruited from across Canada in 1915-1916, these battalions participated in heavy combat on the Western Front.

One such engagement occurred at Vimy Ridge on 9-12 April 1917, just after the US declared war on Germany. An eyewitness recalled dozens of Americans in Canadian uniform producing small US flags, tying them to their bayonets and executing a spontaneous charge against a German trench, killing and capturing numerous enemy soldiers, and raising a cheer.

The *War Illustrated*, a contemporary magazine, depicted a romanticised image of the event on its cover and recounted the story of a young soldier from Texas who, "carried his flag to the very front, but in the assault he fell with a bullet in his body. He was taken to hospital, but his fate has not come to light."

Right: Published on 30 June 1917, *The War Illustrated* cover showed American soldiers charging on Vimy Ridge





The first wave of the AEF drew large, enthusiastic crowds in both Boulogne and Paris



Pershing and his staff arrive in France on the transport ship *Invicta*. A large crowd turned out to welcome the first wave of the AEF



Nearing Boulogne, General Pershing and his staff salute as the national anthem is played



Above: General Pershing, having just arrived in France, pauses to talk to a British general before making his way to Paris

PERSHING AND THE AEF IN FRANCE

ORGANISATION, TRAINING AND EVENTUALLY A BAPTISM OF FIRE MARKED THE SLOW BUT INEXORABLE DEPLOYMENT OF THE AMERICAN EXPEDITIONARY FORCE IN FRANCE

Secretary of war Newton D Baker, with the approval of President Woodrow Wilson, appointed General John 'Blackjack' Pershing to lead the American Expeditionary Force (AEF) to war in Europe, although Pershing was junior in rank to five other major generals of the US Army.

Pershing's task was daunting. The army was small, under-equipped and lacked training. Graftoes had to be shaped into soldiers, and for this reason Pershing resisted the early deployment of large numbers of American troops in Europe. In a symbolic gesture, 14,000 American soldiers had reached

France by June 1917. The draft would soon swell the ranks of the US Army and by the spring of 1918, General Pershing led more than 1 million Americans in uniform abroad. When Pershing left for Europe, Secretary Baker offered, 'I will give you only two orders, one to go to France and the other to come home. In the meantime, your authority in France will be supreme.'

General Pershing exercised that authority to assert American independence of command, refusing to allow his troops to be parcelled out among British and French units as replacements. He did initially allow American units to operate under senior Allied command to gain combat experience, particularly in early engagements at Cantigny, Belleau Wood and Hamel.

Organisation and training were ongoing, with 32 camps established in the United States, and such preparations continued in France. The blueprint for the AEF in Europe dictated a field army of 1 million men in five corps, totalling 30 divisions. Pershing later revised his perceived requirement for manpower to 3 million men and 80 divisions. However, the immediate concern – getting the US Army into the fight – took early precedence.

Placing American industry on a war footing was an arduous process, particularly since President Wilson had hesitated to

do so prior to 1917 for fear of provoking Germany. When the AEF arrived, precious little equipment beyond the basic gear of the infantryman was available from American factories. Instead, British and French weapons were issued to the Americans in large numbers.

At the height of US involvement in World War I, 3,500 artillery pieces were in service with the AEF. Only 667 of these were made in America. The rest were primarily the French 75mm Model 1897 and Schneider 155mm cannon. Of the 2,698 planes in the army's aviation section, only 477 were American-made, while a paltry 130 of these were utilised in combat. Although it was an American design, the British-manufactured Lewis Gun, an excellent machine gun, was issued to US troops along with less impressive French Chauchat. American armoured units were populated with British and French vehicles, particularly the French Renault FT-17 tank.

Throughout the American deployment on the Western Front and the AEF combat experience, French Marshal Ferdinand Foch served as commander-in-chief of the Allied armies. Pershing co-operated but maintained separate, practical US command structure as much as possible. He reasoned that the US Army might one day bear the brunt of manpower needed to continue the fight against Germany.

"I WILL GIVE YOU ONLY TWO ORDERS, ONE TO GO TO FRANCE AND THE OTHER TO COME HOME. IN THE MEANTIME, YOUR AUTHORITY IN FRANCE WILL BE SUPREME"



feasible or desirable where the peace of the world is involved."

Wilson went on to intone his now famous comment, "The world must be made safe for democracy. We have no selfish ends to serve. We desire no conquest, no dominion. We seek not material compensation for the sacrifices we shall freely make. We are but one of the champions of the rights of mankind. It is a fearful thing to lead this great, peaceful people into war." On 4 April, the senate voted 82-6 in favour of Wilson's request. The House of Representatives followed suit on 6 April, voting 373-50 to go to war.

Ironically, although the United States was at war with Germany in the spring of 1917, the country was hardly able to make an immediate contribution of troops on the Western Front in Europe. In fact, German awareness of the pathetic state of the American military had probably encouraged the resumption of unrestricted submarine warfare. The US Navy did contribute a battle group to station at the Royal Navy anchorage of Scapa Flow in the Orkney Islands and destroyers to anti-submarine patrols and convoy duty in the Atlantic; however, the initial deployments of US Marines and Army troops to Europe was much more a trickle than a torrent.

By the time the US entered the Great War, its standing army numbered only about 200,000 troops, including a poorly trained, pitifully equipped and highly politicised National Guard that comprised nearly half its complement. Dwarfed by the size of the British, French and German armies, the US Army was also inexperienced. Only time, training and the sting of combat could change such conditions. In May 1917, congress passed the Selective Service Act. All males aged 21 to 30 were required to register, and within a year, more than 1 million American soldiers were in France.

"Lafayette, we are here!"

The American Expeditionary Force, under the command of General John 'Blackjack' Pershing, began arriving in France in June 1917, and one of the general's aides, Colonel Charles E Stanton, remarked, "LaFayette, we are here" while visiting the tomb of the French nobleman who had supported the fledgling colonies during the American Revolution nearly 150 years earlier.

British and French commanders proposed to use American troops as replacements for their own losses, essentially breaking up their unit cohesion and feeding them into the trenches of the Western Front alongside veterans of the horror. Pershing flatly refused and maintained command of the American forces in Europe for the duration of the war.

Pershing was compelled to accept the offer of the British and French in one significant aspect of the American deployment. Although US riflemen, known as Doughboys, carried the Springfield Model 1903 rifle in substantial numbers, other weapons and war material were scarce in the United States. Placing American industry on a war footing was a lengthy process, and the transportation of



A pair of American soldiers with their bayonets fixed attack a German bunker during fighting c.1918

goods across the Atlantic was even more time consuming. Therefore, American troops commonly fought using weapons of British and French manufacture, including the use of tanks and aircraft.

Mass mobilisation was not limited to the military though, and on the home front the entire American nation was also immersed in the war effort. Government agencies were established to assist and administer the transition of the US economy from peacetime to war, while factories began to turn out the uniforms, weapons and other equipment that were needed to outfit the burgeoning armed forces. Farmers were asked to redouble their productivity and the United States Food Administration encouraged average citizens to plant victory gardens in backyards and empty plots.

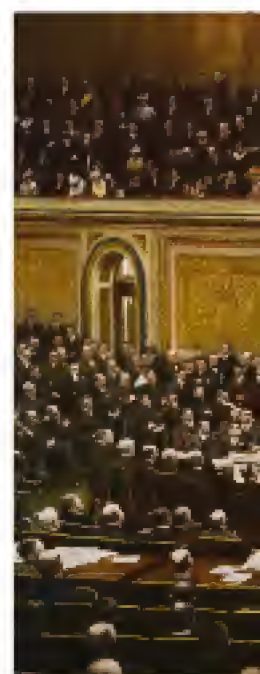
Contact at Cantigny

The elaborate system of opposing trenches along the Western Front stretched from the English Channel to the Swiss frontier. Since 1914, the opposing forces had been mired in

the stalemate, neither side capable of gaining the upper hand and sustaining a decisive offensive action. With the positions of existing British and French troops already fixed, the first organised American units were deployed on the Allied southern flank.

In October 1917, the US 1st Division made its first tentative foray into the trenches as one battalion at a time spent 10 days in the line alongside soldiers of a veteran French division. During fighting on 2-3 November 1917, the Germans raided a trench occupied by American troops who, only days before, had paraded proudly through the streets of Paris. The first combat casualties under the US flag were sustained; three dead and 11 captured.

In the spring of 1918, the German high command realised that the weight of American numbers would eventually tip the balance irretrievably in favour of Allied victory. In a desperate gamble to stave off defeat, the Germans launched their last major offensive of the war. South-east of their deepest penetration of Allied lines, the Germans had maintained a small salient around the town of



"ALL MALES AGED 21 TO 30 WERE REQUIRED TO REGISTER, AND WITHIN A YEAR, MORE THAN 1 MILLION AMERICAN SOLDIERS WERE IN FRANCE"

Right: A British Sergeant Major trains a US recruit in the use of the bayonet at Camp Dick, Texas, c.1917-18





President Woodrow Wilson asks Congress for a declaration of war against Germany on 2 April 1917



American soldiers of the 23rd Regiment, 2nd Infantry Division fire their infantry support gun at German positions in France

“FRENCH TROOPS HAD TAKEN THE TOWN TWICE, ONLY TO BE THROWN BACK. NOW IT WAS THE AMERICANS’ TURN”

Saint Mihiel since 1914. American troops of the 26th Division were entrenched in the area.

On April 20, a regiment of German infantry followed a heavy bombardment with an attack against the American trenches near the village of Seicheprey, overrunning two companies of the 26th Division and capturing the trenchline. American efforts to counterattack were a shambles, and when they eventually moved forward, the Germans had already withdrawn. General Pershing was livid, the poor showing had cost the Americans more than 750 men killed, wounded and captured. The Germans suffered 160 dead.

Some measure of redemption was achieved a few weeks later as the 1st Division, commanded by Major General Robert L. Bullard, moved northward along the line to bolster French positions under German attack. Once his division had reached its assigned sector

near Montdidier, Bullard clamoured for the opportunity to seize the initiative. Held by elements of the German 16th Army, the village of Cantigny was situated on high ground near the tip of the Saint Mihiel salient. French troops had taken the town twice, only to be thrown back. Now it was the Americans’ turn.

On the morning of 28 May, the 1st Division’s 28th Regiment, which was commanded by Colonel Hanson Ely, advanced along with three machine-gun companies and a company of engineers behind a rolling artillery barrage. Supported by French tanks and aircraft, the co-ordinated assault pushed the Germans out of the village in little more than 90 minutes. However, the toughest test for the Americans was in holding Cantigny against repeated German counterattacks.

The first enemy riposte came just minutes after the town fell into American hands and was

stopped cold. The 1st Battalion, 26th Infantry Regiment, under Major Theodore Roosevelt, Jr., son of the former president, arrived to reinforce the American positions. Over the course of the next 48 hours, five more enemy counterattacks were repulsed. As the struggle to hold Cantigny continued, the French artillery was withdrawn to meet another threat. Only American field guns remained to blunt the German attacks, but their timely and accurate fire helped to shred the enemy ranks.

When the situation stabilised, the 18th Regiment relieved Ely’s command. The Americans lost more than 200 killed in action and 800 wounded or captured, while German casualties included 250 taken prisoner and an unknown number of dead. 20 years after the Battle of Cantigny, Americans returned to erect a monument commemorating the first attack by an American division in the world war.

These early actions involving American soldiers during World War I were limited in scope; however, the American Expeditionary Force was destined to participate in the fighting on a much grander scale.

American soldiers throw hand grenades toward an enemy trench during action on the Western Front in 1918





JAPAN'S FIRST STRIKE

Imperial planning and preparation for the surprise attack on Pearl Harbor began months before the Sunday morning aerial assault

Just before sunrise on Sunday 7 December 1941, six aircraft carriers of the Imperial Japanese Navy's First Air Fleet under the command of Vice Admiral Chuichi Nagumo, turned into the wind, ready to launch a powerful striking force of 353 aircraft.

Nagumo's flagship, Akagi, and her consorts, Kaga, Soryu, Hiryu, Shokaku and Zuikaku, set in motion the marauding strike force that would plunge the Pacific into World War II. Its target was the US Navy's Pacific Fleet, which was anchored at Pearl Harbor on the island of Oahu in the territory of Hawaii. Other US Navy and Army installations on the island, Hickam Field, Wheeler Field, Bellows Field, Ewa Marine Corps Air Station, and the naval air stations at Kaneohe and on Ford Island in the heart of Pearl Harbor were to be hit as well.

The opening blow was intended to cripple the American military presence in the Pacific; allow the Japanese armed forces to seize and consolidate strategic gains throughout the region; and bring the US government to the negotiating table where Japan would dictate favourable terms of an armistice. To that end, the Pearl Harbor raid was co-ordinated with attacks on the Philippines, Wake Island, Midway Atoll and Malaya.

The gambit was all or nothing for Japan. Although senior Japanese commanders were confident of swift victory, at least some of them acknowledged that a prolonged war with the United States was a daunting prospect, considering the industrial might and resources at the disposal of their adversary. Years of rising militarism and imperialism in Japan had placed the island nation on a collision course with the United States, a preeminent power in the Pacific since the Spanish-American War. Japan's provocative military moves on the Asian mainland, particularly the occupation of the Chinese region of Manchuria and later of French Indochina, had brought the two nations to loggerheads. While negotiations were continuing, most observers on either side of the Pacific believed war was inevitable.

The British Influence

At 9pm on the evening prior to the Pearl Harbor attack, Nagumo ordered all hands aboard the Akagi to attention. He solemnly read a message from Admiral Isoroku Yamamoto, commander-in-chief of the Combined Fleet. "The rise or fall of the empire depends on this battle. Everyone will do his duty to the utmost."

Yamamoto meant the communication not only as an encouragement to the Japanese sailors and airmen, but also as homage to naval esprit de corps. During the decades preceding World War II, the Imperial Japanese Navy had embarked on a lengthy program of



Vice Admiral Chuichi Nagumo led the First Air Fleet during the Pearl Harbor operation, but later lost his command.

expansion, modernising and modelling itself on the finest naval tradition in the world – the British Royal Navy. The message from Yamamoto echoed one similarly flashed by Admiral Horatio Nelson, one of the greatest heroes in the history of the Royal Navy, prior to the epic battle of Trafalgar in 1805.

Japanese respect for the Royal Navy ran deep. Since the turn of the 20th century, some vessels of the Imperial fleet had actually been constructed in British and French shipyards, while Japanese training, operational standards, uniforms and rank insignia were similar to those of the British.

Following the outbreak of war in Europe, the Royal Navy again served as a role model for the Japanese. On the night of 11 November 1940, Fairey Swordfish torpedo bombers of the Fleet Air Arm flew from the deck of the aircraft carrier HMS Illustrious in the Mediterranean Sea and attacked the Italian naval anchorage at Taranto. The 21 obsolescent British biplanes sank one Italian battleship and damaged two others.

For the Japanese, the idea of a preemptive raid on Pearl Harbor had been discussed, tested during war games and shelved several times during the years between the world wars. However, bolstered by the British success, the staff of the Combined Fleet began, with renewed purpose in January 1941, to plan for just such a bold stroke.

Lieutenant Commander Minoru Genda, one of the best known and most respected aviators in the Japanese armed forces, had observed American carriers operating in a unified, single strike force and attended war games in 1936, during which an offensive scenario against Pearl Harbor had ended in simulated disaster for the attacker. Still, Genda remained one of a relative few Japanese officers who believed it was possible for a carrier task force to

**"THE RISE OR FALL OF THE EMPIRE
DEPENDS ON THIS BATTLE. EVERYONE WILL
DO HIS DUTY TO THE UTMOST"**

– ADMIRAL ISOROKU YAMAMOTO, COMMANDER-IN-CHIEF OF THE COMBINED FLEET



© Peter Forgasz.com



successfully deliver a stunning blow against an enemy fleet at anchor.

As Japanese aircraft carrier strength reached sufficient levels to support a Pearl Harbor attack, Yamamoto instructed Admiral Takajiro Onishi, chief of staff of the Eleventh Air Fleet, to order Genda to evaluate the potential for success with, "...special attention to the feasibility of the operation, method of execution and the forces to be used." Yamamoto was reluctant to go to war with the US, however, he strongly believed that a substantial and successful first strike at the Pacific Fleet was the only option to bring such a conflict to a rapid and favourable conclusion for Japan.

Yamamoto's assertion that Pearl Harbor should be Japan's target actually reversed traditional thinking at the highest command levels within the Imperial Navy. Although the army had been active on the Asian continent, naval doctrine had previously assumed a defensive posture. In the autumn of 1940, Yamamoto's assertion became an ultimatum. He eventually threatened to resign if senior commanders within the Combined Fleet refused to support the proposal.

The blueprints for war

By the following August, the basic plan for the Pearl Harbor attack had been approved. The six aircraft carriers of the First Air Fleet were to be accompanied by an armada of two battleships, two heavy cruisers, a light cruiser, nine destroyers, three submarines and eight tankers – a total of 31 vessels – sailing from their

rendezvous point at Hitokappu Bay in the Kurile Islands. The fleet was to sail on 26 November; take a northerly course, in order to avoid the busy Pacific trade routes and merchant shipping that plied the ocean; maintain strict radio silence; and launch its aircraft in two waves from a position 370 kilometres north of Oahu. The tentative date for the attack was designated as 7 December 1941. A cordon of fleet submarines was positioned around Oahu to provide early warning of American ship movements and attack any US Navy vessels that might be at sea near the harbour. Five midget submarines were to be launched from

their mother submarines hours before the aerial attack, with the hope that they might infiltrate Pearl Harbor and launch torpedoes at anchored vessels of the Pacific Fleet.

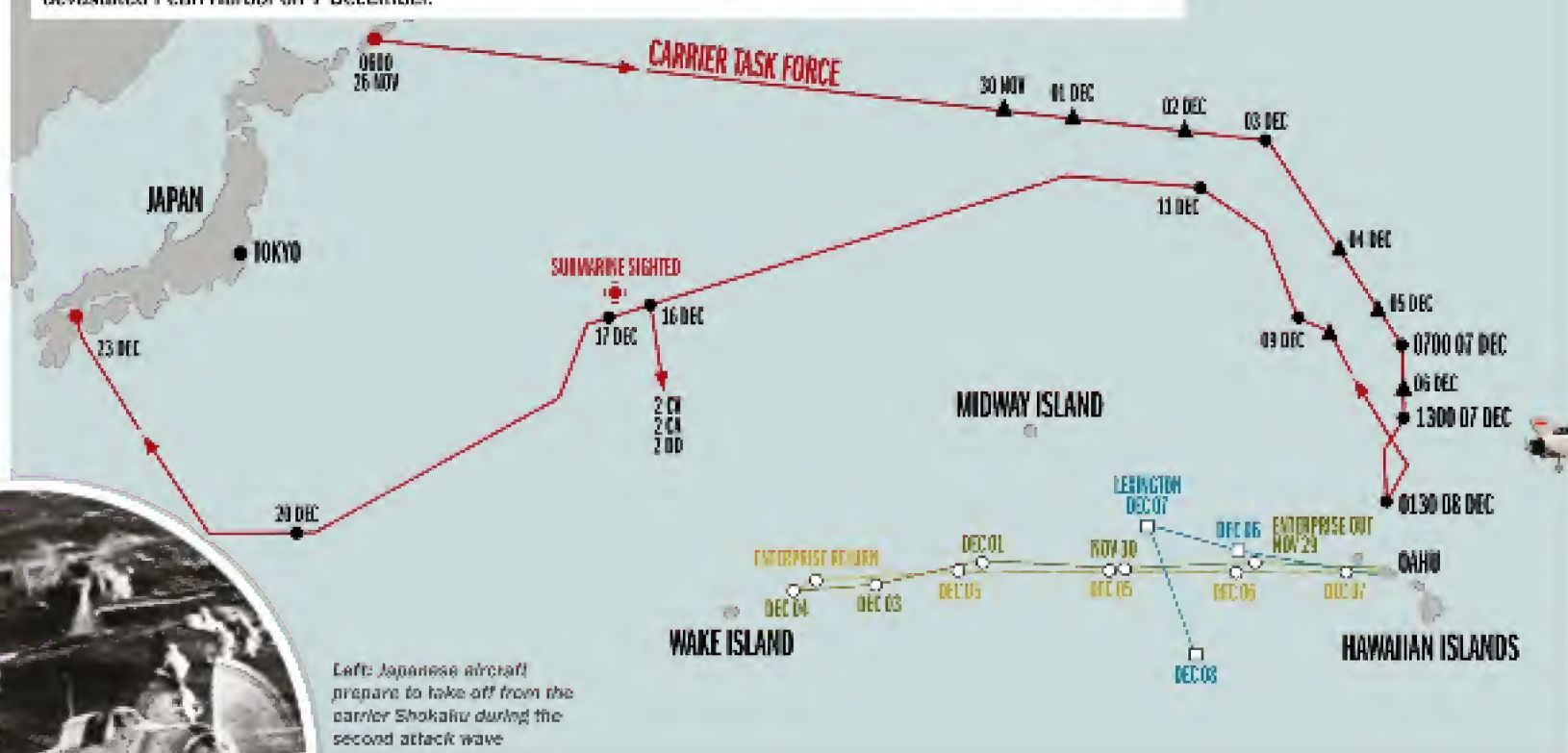
Early in September, senior Japanese officers convened at the Naval War College in Tokyo and finalised the plans for the attack. One month later, senior pilots who would assume command of air groups were informed of the target against which they had been training so rigorously. They already had some idea of its nature, since the torpedo groups had worked to perfect their runs against capital ships anchored in shallow waters.



The battleship USS Pennsylvania lies behind the battered destroyers, Cassin and Downes, in dry dock at Pearl Harbor.

JAPANESE RAIDER ROUTE

The six Imperial Japanese Navy aircraft carriers and their escorting ships of the First Air Fleet departed the friendly waters of the Kurile Islands on 26 November 1941, sailing a northern route well away from standard merchant shipping lanes and maintaining strict radio silence. Rough seas and intermittent heavy rain cloaked the warships at times as they turned south east towards a point 370 kilometres north of Oahu to launch the aerial strike force that devastated Pearl Harbor on 7 December.



Left: Japanese aircraft prepare to take off from the carrier Shokaku during the second attack wave



IMPERIAL WAR MACHINES

THE JAPANESE ARMED FORCES EMPLOYED THE LATEST TECHNOLOGY AVAILABLE DURING THE OPENING PHASE OF WORLD WAR II IN THE PACIFIC

MITSUBISHI A6M ZERO FIGHTER

For a time, the Mitsubishi Zero reigned supreme as the finest carrier-based fighter aircraft in the Pacific. Developed in the 1930s, it was already reputed as a highly manoeuvrable, heavily armed and deadly opponent by the time of the Pearl Harbor attack. However, the Zero was also vulnerable. Its design sacrificed armour and self-sealing gasoline tanks to achieve remarkable performance.

ENGINE

Its two-row, 12-cylinder Nakajima Sakae radial engine provided the Zero a top speed of 534 kilometres per hour.

WEAPONS

The Mitsubishi Zero was armed with 7.7mm machine guns firing through the engine cowl and 20mm cannon in its wings.

NAVIGATION

For navigation, Japanese midget submariners depended heavily on instruments and a carefully deployed periscope extending from the small conning tower.

MIDGET SUBMARINE

Two-man Japanese midget submarines were developed to provide stealthy offensive capability. Amid cramped quarters, crewmen manoeuvred their craft, armed with a pair of torpedoes, into position to fire on enemy ships. At Pearl Harbor, all five midget submarines were lost. One was captured intact after it beached and its commander became the first prisoner of the Americans during World War II.

TORPEDOES

Japanese midget submarines carried a pair of lethal torpedoes that protruded from the tubes located in the small submersible's bow.

"AT PEARL HARBOR, ALL FIVE MIDGET SUBMARINES WERE LOST"

AIRCRAFT CARRIERS

At the time of Pearl Harbor, the modern aircraft carriers of the Imperial Japanese Navy included converted battlecruisers Akagi and Kaga, along with those built from the keel up, such as the smaller Soryu and Hiryu. The newest fleet carriers were the Shokaku and Zuikaku, both displacing more than 26,000 tons and carrying more than 80 combat aircraft.

MODIFICATIONS

Japanese aircraft carriers were often modified and upgraded during experimentation to enhance flight operations, including constructing or relocating their islands.

HANGAR DECKS

Japanese crewmen laboured on hangar decks to prepare planes for combat, moving them to flight decks for launch via elevator.



Combined Fleet Top Secret Operational Order No 1 was issued on 5 November, followed 48 hours later by Order No 2, authorising the fleet to weigh anchor at the end of the month and to execute the attack on Pearl Harbor.

When the fleet set sail, Admiral Kichisaburo Nomura and Special Envoy Saburo Kurosu were in Washington, DC, conducting last-ditch negotiations with Secretary of State Cordell Hull and President Franklin D Roosevelt. These negotiations were expected to fail, and when the impasse was reached, specific orders to launch the attack would be issued to Nagumo at sea. At the same time, the envoys, oblivious to the details of the Pearl Harbor attack, were instructed to deliver a message to the US government, officially terminating the negotiations. The government in Tokyo considered this diplomatic step essentially a declaration of war, timed for a half hour before the Japanese aircraft appeared in the sky above Pearl Harbor.

Lieutenant Commander Mitsuo Fuchida, leader of the air groups of the First Air Fleet, was assigned the task of allocating aircraft to specific targets, organising the two waves of planes to co-ordinate their attacks and allotting fighter protection against any defending American planes that might make it into the sky to give battle. Fuchida assigned 185 aircraft

to the first wave. It consisted of 49 Nakajima B5N 'Kate' bombers carrying armour-piercing bombs, 40 Kates with aerial torpedoes, 51 Aichi D3A 'Val' dive bombers with general purpose bombs and 45 superb Mitsubishi A6M Zero fighters to provide escort and strafe targets of opportunity.

While the Kates hit the warships anchored in Pearl Harbor, 25 Vals were designated to blast the primary American fighter base at Wheeler Field. 17 Vals were assigned to destroy Ford Island's patrol plane and fighter base and nine were to strike American bombers based at Hickam Field. The second wave included 54 Kates armed with 550 and 125-pound bombs to demolish installations and crater runways at the airfields, 80 Vals with 550-pound bombs to renew the attacks on the warships in the harbour and 36 marauding Zeros.

Fuchida received an intelligence message from a Japanese spy on Oahu the day before the attack was launched. It was tinged both with optimism that the element of surprise would be achieved and disappointment that the three American aircraft carriers, Enterprise, Lexington and Saratoga were not present at the anchorage. It read: "No balloons, no torpedo defence nets deployed around battleships in Pearl Harbor. All battleships are in. No indications from enemy radio activity that ocean



NAVAL AIR JUGGERNAUT

THE IMPERIAL JAPANESE NAVY OBSERVED WESTERN ADVANCES IN NAVAL AVIATION AND WELCOMED MILITARY ENVOYS TO CONSULT AND TRAIN ITS PILOTS

The British Royal Navy pioneered many aspects of the development of naval aviation in the early 20th century and Japanese naval observers also recognised its potential.

Intent on emulating the Royal Navy's successes, the Japanese received a British mission headed by Captain William Sempill in the autumn of 1921. Sempill led 29 air operations instructors charged with assisting the development of the Japanese naval aviation program. By 1922, the Japanese had also constructed the Hosho, the world's first

aircraft carrier purpose-built, rather than converted from another ship type.

Sempill, who was later exposed as a spy for the Japanese, hoped to secure substantial sales of British arms to Japan in exchange for valuable expertise and advice. His team brought the blueprints of the most advanced British carrier designs, protocols involving elements such as pilot training; the launch and recovery of aircraft; refuelling and maintenance; and airborne operations. The British trained the young Japanese

pilots in the latest Royal Navy aircraft, such as the Gloster Sparrowhawk fighter, along with torpedo bombers and dive bombers. They introduced torpedo tactics to the Imperial Navy as well.

Japanese engineers and designers experimented with their own ordnance and aircraft, several of which were patterned after British types, and perfected carrier operations and doctrine during the 1920s and 1930s.

Prior to the attack on Pearl Harbor, Lieutenant Commander Takeshi Naflo, a naval attaché in Berlin, travelled to the port of Taranto, Italy, where the British had executed a successful attack against the Italian Fleet at anchor in November 1940. With the assistance of the Italian Navy, Naflo assessed the dynamics of the Taranto raid and advised the Pearl Harbor planners on modifications to existing tactics. Eventually, wooden stabilising fins were attached to Japanese aerial torpedoes, allowing them to run true in Pearl Harbor's shallow waters.

Below: Type 91 Kai 2 torpedoes on the flight deck of the Imperial Japanese Navy aircraft carrier, Akagi. The carrier is at Hitokappu Bay in the Kuriles just prior to departing for the attack on Pearl Harbor



"SEMPILL, WHO WAS LATER EXPOSED AS A SPY FOR THE JAPANESE, HOPED TO SECURE SUBSTANTIAL SALES OF BRITISH ARMS TO JAPAN"



Dive bombers crowd a flight deck prior to Pearl Harbor



The battleship USS Arizona belches black smoke as its superstructure buckles after a devastating explosion during the Pearl Harbor attack

patrol flights being made in Hawaiian area. Lexington left harbour yesterday. Enterprise also thought to be operating at sea."

The Saratoga was steaming into the harbour at San Diego, California when the Japanese attackers arrived above Pearl Harbor on 7 December. Although the aircraft carriers were absent, there was no turning back. The attack had to proceed as ordered and the Japanese rationalised that the remaining targets, particularly the US battleships, were high value enough to justify the risk being undertaken.

"Tora! Tora! Tora!"

As the sky was still dark over the deck of the Akagi, pitched in rough seas, a green lamp was waved in a circle and the first Zero fighter roared down the flight deck into the air. Within 15 minutes, the entire first wave was airborne. At 7.40am, the north shore of Oahu came into view. Fuchida was exultant. He radioed "Tora! Tora! Tora!" to the anxious Nagumo, signifying that complete surprise had been achieved. For several hours, the attackers wrought devastation on their targets below.

Elsewhere in the Pacific, Japanese forces moved aggressively in concert with the Pearl Harbor attack, reaching for objectives that would minimise US interference with coming operations to seize the Dutch East Indies, secure vital resources such as oil and rubber for their war machine and extend their defensive perimeter further into the expanse of the great ocean.

As the attack got underway in Hawaii, word was flashed to Midway Atoll at 6.30am local time on 7 December. The Marine garrison went on high alert and by dusk, the Japanese had arrived. Two Imperial Navy destroyers, the Akebono and Ushio, were sighted as they prepared to shell the installations on Midway. War came to the atoll at 9.35pm, as



Japanese Mitsubishi Zero fighter roars off the flight deck of the aircraft carrier Akagi en route to Pearl Harbor

Japanese 13-centimetre shells crashed on Sand and Eastern Islands, the two spits of land that, within months, would become the epicentre of World War II in the Pacific. As the destroyers cruised back and forth, the Marine guns responded with seven and 13-centimetre rounds. Japanese shells set the large seaplane hangar ablaze. One enemy round scored a direct hit on the concrete structure that housed the Sand Island powerplant, smashing through an air intake and mortally wounding a young Marine officer, 1st Lieutenant George H Cannon, who refused to leave his post for medical treatment and later received a posthumous Medal of Honor.

The Midway battle lasted for about half an hour and Marine gunners claimed to have scored hits on at least one enemy destroyer, which was seen belching smoke and flame. When the Japanese finally withdrew, four Americans were dead and ten wounded. 36 Japanese bombers hit Wake Island on the morning of 8 December, destroying a dozen Grumman F4F Wildcat fighters on the ground. Meanwhile, Japanese troops landed at Kota Bharu on the coast of Malaya while the Pearl Harbor attack force was in the air. Within hours of the strike against Pearl Harbor, Japanese bombers hit Clark Field and other installations in the Philippines, catching American planes on the ground again.

Shocked and bloodied, the United States was suddenly at war. For a time, Japanese domination of the Pacific was virtually uncontested, but just as Yamamoto feared, a protracted conflict, one that Japan could not win, emerged. Even as Allied forces turned the tide and fought their way inexorably to Tokyo Bay and victory in 1945, the spectre of Pearl Harbor haunted the Americans.

While conspiracy theories have surfaced in the three-quarters of a century since the 'Day of Infamy', these remain the topic of heated debate and conjecture. Some revisionist historians have reviewed all the proof they need to conclude that President Roosevelt and other high-ranking Allied civilian leaders and military officers – even British Prime Minister Winston Churchill – were aware that the attacks on Pearl Harbor and other locations were coming. However, the 'case' will probably never be closed.

On the tactical level, the Americans received several warnings of the Japanese air armada approaching Pearl Harbor on 7 December 1941 – an encounter with a midget submarine and a radar sighting at Opana above Kahuku Point on the north shore, for instance. An open question remains as to whether American commanders in Hawaii should have taken action to improve preparedness and should have been more responsive to the signs of imminent attack on that fateful Sunday morning.

A DAY OF INFAMY

DESPITE THE SUCCESS OF THE ATTACK ON PEARL HARBOR, ADMIRAL YAMAMOTO CORRECTLY SURMISED THAT IT WAS INCOMPLETE

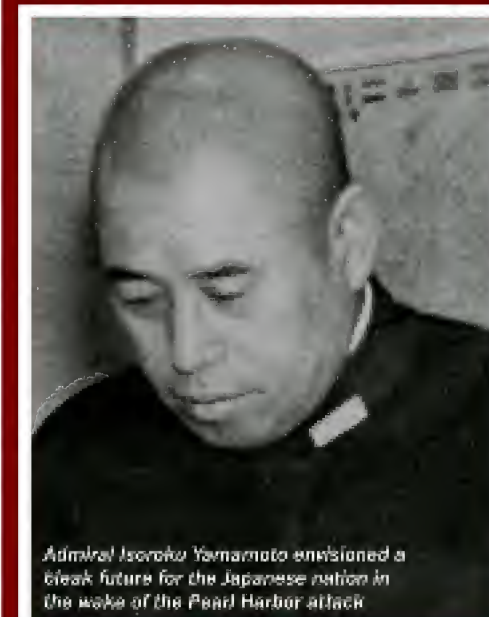
As soon as Lieutenant Commander Mitsuo Fuchida was back aboard the Akagi, the leader of the Pearl Harbor strike reported to Vice Admiral Chuichi Nagumo on the carrier's bridge. Fuchida is said to have begged his commander to launch another attack.

Nagumo declined. The risk was too great and so he ordered the First Air Fleet to retire. When news of the successful attack reached Tokyo, citizens took to the streets in celebration. The highest echelons of the military exuded optimism.

However, Admiral Isoroku Yamamoto, architect of the raid, brooded. The American carriers had not been destroyed. Retribution would soon come. He had once warned fellow officers, "If I am told to fight regardless of the consequences, I shall run wild for the first six months or a year but I have utterly no confidence for the second or third year."

Pearl Harbor had been a tremendous tactical victory. The US Pacific Fleet was crippled but Yamamoto's words proved prophetic. Machine shops, repair facilities and stockpiles of fuel and oil were untouched. The submarine base was operational. The Americans recovered rapidly and just six months after Pearl Harbor, four of the Japanese carriers that had executed the raid were sunk by American planes at the Battle of Midway.

"IF I AM TOLD TO FIGHT REGARDLESS OF THE CONSEQUENCES, I SHALL RUN WILD FOR THE FIRST SIX MONTHS OR A YEAR BUT I HAVE UTTERLY NO CONFIDENCE FOR THE SECOND OR THIRD YEAR"



Admiral Isoroku Yamamoto envisioned a bleak future for the Japanese nation in the wake of the Pearl Harbor attack

FLYING



TIGERS



How the outnumbered fighter aces of the American Volunteer Group defied Imperial Japan in war-torn China

Left: The ferocious mouths painted on the nose were inspired by the tiger sharks painted by RAF pilots in the Mediterranean theatre on their planes

They expected a routine mission. Japanese planes owned the skies over China, but the pilots and crewmen who boarded the ten Mitsubishi Ki-21 twin-engine bombers on the morning of 20 December 1941, intended to cover the 300 air miles from their base at Hanoi to the Chinese city of Kunming, drop their incendiaries and 500-pound bombs, and return unscathed. There was no need for a fighter escort.

For a decade the armed forces of Imperial Japan had been at war on the Asian continent. They staged the Mukden Incident in 1931 as a pretext to seizing the northern province of Manchuria from China and another so-called 'incident' in 1937 at the Marco Polo Bridge, near the city of Peking, to escalate the simmering conflict into what became known as the Second Sino-Japanese War. The Chinese resisted bravely on land and in the air. However, the resources of the Nationalist government of Generalissimo Chiang Kai-shek were few and often ineffective in the face of the Japanese onslaught.

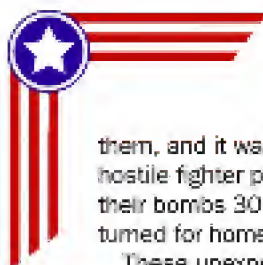
Nowhere was the military contest more unequal than in the air. The Japanese flew modern planes, their pilots were well trained, and with each mission their confidence grew. Japanese fighter pilots regularly shredded the defending planes of the Republic of China Air Force, most of which were obsolete American-designed Curtiss BF2C Goshawk biplanes along with a few British, Italian, and Soviet types. Chinese pilots were often the sons of wealthy, influential families who graduated from flight training with wings pinned to their chests regardless of proficiency.

These ill-prepared fliers were often killed, their valuable aircraft destroyed in takeoff and landing incidents, while those who managed to engage in aerial combat fell to Japanese guns at an alarming rate. By 1941, although the Republic of China Air Force officially listed a complement of 500 planes, which was probably overstated, barely 90 aircraft were considered battleworthy at any given time.

However, during that morning mission to Kunming, the Japanese were made keenly aware that the situation in the skies above China, and neighbouring Burma, had been dramatically altered. As they approached their target, the Japanese pilots spotted something unusual. Four tiny dots were rapidly bearing down on



Chinese soldiers and armourers of 74th Fighter Squadron inspecting a Curtiss P-40 in Kunming, China, 1 February 1943



them, and it was soon apparent that these were hostile fighter planes. The Japanese released their bombs 30 miles southeast of Kunming and turned for home at high speed.

These unexpected attackers were, in fact, Curtiss P-40 Tomahawk fighters led by Lieutenant John V. 'Scarsdale Jack' Newkirk. Ten more P-40s joined the pursuit, and one by one the Japanese bombers were shot to pieces, exploding in midair or trailing thick, black smoke as they spiralled into the ground. A single bomber survived to report the details of the harrowing mission. The crewmen described their attackers as heavy, single-engine fighters with snarling shark's mouths painted on their engine cowlings. Their comrades had been the first victims of the flamboyant airmen of the American Volunteer Group (AVG), popularly known as the Flying Tigers.

The initial aerial combat mission of the Flying Tigers had been a resounding success, and newspaper reports flashed across the globe. This provided a much-needed morale boost for the American public, still stunned by the sudden attack on Pearl Harbor that had plunged the nation into World War II only two weeks earlier, and offering hope to the beleaguered Chinese.

For years, Chiang Kai-shek had realised that he needed help from the United States to stem the Japanese tide. However, a major obstacle to securing American aid was the simple fact the country was not a belligerent during the 1930s. An overt act to provide military support to China might, in fact, provoke the Japanese into declaring war on the United States. Nevertheless, Chiang possessed two quite powerful assets in his quest for American

"ONE BY ONE THE JAPANESE BOMBERS WERE SHOT TO PIECES, EXPLODING IN MIDAIR OR TRAILING THICK, BLACK SMOKE AS THEY SPIRALLED INTO THE GROUND. A SINGLE BOMBER SURVIVED TO REPORT THE DETAILS OF THE HARROWING MISSION"

assistance. His wife, Soong Meiling, also known as Madame Chiang, was a charming and shrewd political pragmatist, while the Nationalists also benefited from a powerful lobby in the United States led by her brother, T.V. Soong, who moved easily through the halls of power in Washington, DC.

Madame Chiang was charged with raising the combat prowess of the Republic of China Air Force, and she proved quite capable in the role. Without doubt, her most significant accomplishment was in persuading a grizzled American captain to come out of retirement in Louisiana, travel halfway around the world, and take on the monumental task of revitalising that flagging fortunes of the Chinese air arm.

Claire Lee Chennault was a veteran of the US Air Corps and a former stunt flier. To the detriment of his career, he had also been a tireless, vocal champion of developing fighter aircraft and tactics, during an era that was dominated by senior officers who promoted the deployment of heavy bombers bristling with guns. The prevailing sentiment among these officers was that the big bombers could defend themselves without the help of fighter escorts, pound enemy cities and military targets, and

actually win a modern war by raining devastation from the skies.

Chennault never bought into that concept and argued forcefully against the prevailing fighter tactics that emerged during World War I. "There was too much of an air of medieval jousting in the dogfights," he said boldly, "and not enough of the calculated massing of overwhelming force so necessary in the cold, cruel business of war." He believed that fighter pilots should work together in pairs and in larger numbers rather than as lone hunters, and in 1935 he put his theories on paper in the book *The Role of Defensive Pursuit*.

Within months of his book's publication, Chennault was serving as an instructor at Maxwell Field, Alabama. He was notified that the teaching of fighter tactics was to be terminated. Suffering from hearing loss sustained during hours of flying in open cockpits along with chronic bronchitis, Chennault retired with 20 years of service in 1937, still a junior officer at the age of 47.

Although few in Chennault's own country had paid any attention to his fighter doctrine, General Mao Pang-tso of the Republic of China Air Force attended one of his flying demonstrations and



A Chinese soldier stands guard over a P-40E Warhawk. The plane was flown by Major John Petach who accumulated 5.25 kills

passed along his favourable impressions of the American pilot's skills. It was then that Madame Chiang charmed Chennault, who visited the country in the spring of 1937 during negotiations to procure his services. He later remarked, "She will always be a princess to me."

In his own way, Chennault learned to manipulate Madame Chiang, tendering his resignation to her when the Nationalist government moved too slowly regarding some issue or failed to provide support in a timely manner. Madame Chiang always refused to accept the commander's resignation, and she remained his foremost advocate during later contentious disagreements with General Joseph Stilwell, the American commander in the China-Burma-India Theater (CBI) during World War II. Through his association with Madame Chiang, and the exploits of the Flying Tiger pilots, he would soon command, Chennault became one of America's early heroes of the war, exerting tremendous influence on its conduct in the CBI.

Chennault took to his initial task with renewed vigour, enhancing the training of Chinese pilots and establishing an early warning network to alert his bases to incoming Japanese air raids. Among the formidable enemy aircraft his pilots faced was the Nakajima Ki-27 fighter, which was introduced in 1937, and later the Nakajima Ki-43 and the legendary Mitsubishi A6M Zero.

Chennault admonished his pilots to be wary of the nimble enemy planes and to avoid single combat. "Never get into a dogfight with the Zero," he told them. "When you spot the Zeros, make one diving run with guns blazing, and then get the hell out of there!"

Chennault did his best, but Japanese air power was overwhelming, and large formations of enemy bombers hit Chinese cities at will while fighter planes strafed Chinese troops on the ground. As the situation worsened, Chiang Kai-shek turned to his brother-in-law, Soong persuaded President Franklin D. Roosevelt to allow Chennault to quietly recruit American pilots and to eventually purchase 100 new Curtiss P-40 fighters for these 'volunteers'. The planes had been earmarked for the British through the Lend-Lease program but were considered outdated and rejected for service with the RAF.

Six months prior to Pearl Harbor, Chennault had successfully recruited 112 American pilots, who were allowed to resign from the US armed forces and join the Chinese with the promise that they could return to the American military if the United States became a belligerent or when their contracts with the Chinese were completed. The lure of adventure and a fat paycheck weighed heavily in the decisions of these young men. The American Volunteer Group paid \$750 a month to a squadron leader, \$675 to a flight leader, and \$600 to a wingman. Ground crewmen were compensated handsomely from \$150 to \$300 a month depending on an individual's skill set. To sweeten the pot, the Generalissimo added a \$500 bounty for every confirmed shootdown of a Japanese plane.

In the interest of operational secrecy, the American pilots were provided with fake documents and information that presented them as individuals with occupations from engineers to tailors and Vaudeville performers. "I joined the AVG in July 1941," remembered

CBI AIR RAGE

FLYING TIGER PILOTS IN THEIR CURTISS P-40 WARHAWK FIGHTERS FOUGHT SUPERIOR NUMBERS OF JAPANESE PLANES ABOVE CHINA AND BURMA

CURTISS P-40 WARHAWK

Fast in level flight and capable of out-diving the Japanese fighters that the pilots of the American Volunteer Group faced, the Curtiss P-40 fighter was well suited to the 'boom and zoom' tactics advocated by Flying Tiger boss Claire L. Chennault.

YEARS IN SERVICE: 1939-1945
MAX SPEED: 580 KM/H (360 MPH)
ARMAMENT: SIX .50-Z (12.7MM)
**BROWNING M2
MACHINE GUNS**



NAKAJIMA KI-27

Lightly armed and armoured, the Nakajima Ki-27 fighter, nicknamed 'Nate' by the Allies, was highly manoeuvrable and easily out-turned Allied opponents flying Curtiss P-40s in a dogfight. However, it was rapidly outclassed by other aircraft types early in World War II.

YEARS IN SERVICE: 1937-1945
MAX SPEED: 470 KM/H (292 MPH)
ARMAMENT: TWO 7.7MM TYPE 89
MACHINE GUNS



"THE NAKAJIMA KI-27 FIGHTER WAS HIGHLY MANOEUVRABLE AND EASILY OUT-TURNED ALLIED OPPONENTS"

MITSUBISHI A6M ZERO

One of the legendary fighters of World War II, the Mitsubishi A6M Zero was highly manoeuvrable, heavily armed, and superior to early Allied types. ROC Air Force pilots faced the Zero, but debate continues as to whether Flying Tiger pilots did.

YEARS IN SERVICE: 1940-1945
MAX SPEED: 534 KM/H (332 MPH)
ARMAMENT: TWO 7.7MM TYPE 97
**MACHINE GUNS; TWO 20MM TYPE
98-1 CANNON**





Donald Whelpley, who became the group's lead meteorologist. "At that time my duty assignment was Navy meteorologist to Patrol Squadron 54, Naval Air Station, Norfolk, Virginia," he continued. "When the Navy finally realised that I was serious about resigning my commission to join Chennault in China, they released me for a one-year tour with the AVG. Little did any of us realise what we had gotten ourselves into."

The recruits sailed to China and maintained their cover. Some of them posed as employees of the Central Aircraft Manufacturing Company (CAMCO), which operated a facility in Burma that assembled planes for the Chinese. By the summer of 1941, Chennault was putting them through their paces at an airfield in Loiwing, China, near the border with Burma.

A remedial training school was established after it was discovered that some of the recruits had lied about their experience in 'pursuit planes' and had only flown bombers or transports. Chennault lectured the aviators regularly, often using a chalkboard to illustrate his points, and shook his head in despair when one of his precious P-40s was damaged in training. The young pilots embraced Chennault's teachings and began referring to the commander as 'Old Leatherface'.

The AVG's P-40s were shipped in crates from New York, but even before they were assembled and took flight, one of the planes met an unfortunate fate. The first of the crates was being loaded into the hold of a freighter when the cable snapped, sending the entire load into the Hudson River below. The engine and all the cockpit controls were damaged beyond repair – and just like that the AVG was down to 99 planes. If Chennault considered the accident a bad omen, he shrugged it off and kept that sentiment to himself. The remaining planes were shipped to Burma, where they were assembled at the CAMCO factory outside the port city and capital of Rangoon. Test flights took place at a nearby airfield, and the P-40s were then delivered to the AVG.

Chennault organised his planes and pilots into three squadrons of equal size. The 1st Squadron, with fuselage numbers 1-33, was nicknamed the Adam and Eves. The 2nd Squadron, fuselage numbers 34-66, was dubbed the Panda Bears, and the 3rd Squadron, fuselage numbers 67-99, was called the Hell's Angels. For a time, the AVG pilots and their ground crew shared the Kyedaw airfield near Toungoo, Burma, with units of the RAF.

Some of the AVG pilots heard that RAF personnel of No 112 Squadron, flying P-40s based in North Africa, had painted the mouths of fearsome tiger sharks on their engine cowlings, probably copying the design from a unit of the German Luftwaffe they had encountered over the Mediterranean Sea. The artists among the Americans went to work replicating the razor-



CURTISS P-40

THE WARBIRDS OF THE AVG MAY BE REMEMBERED FOR THEIR ICONIC NOSE ART, BUT IT TOOK MORE THAN GRAPHIC DESIGN TO WIN THE AIR WAR FOR CHINESE FREEDOM



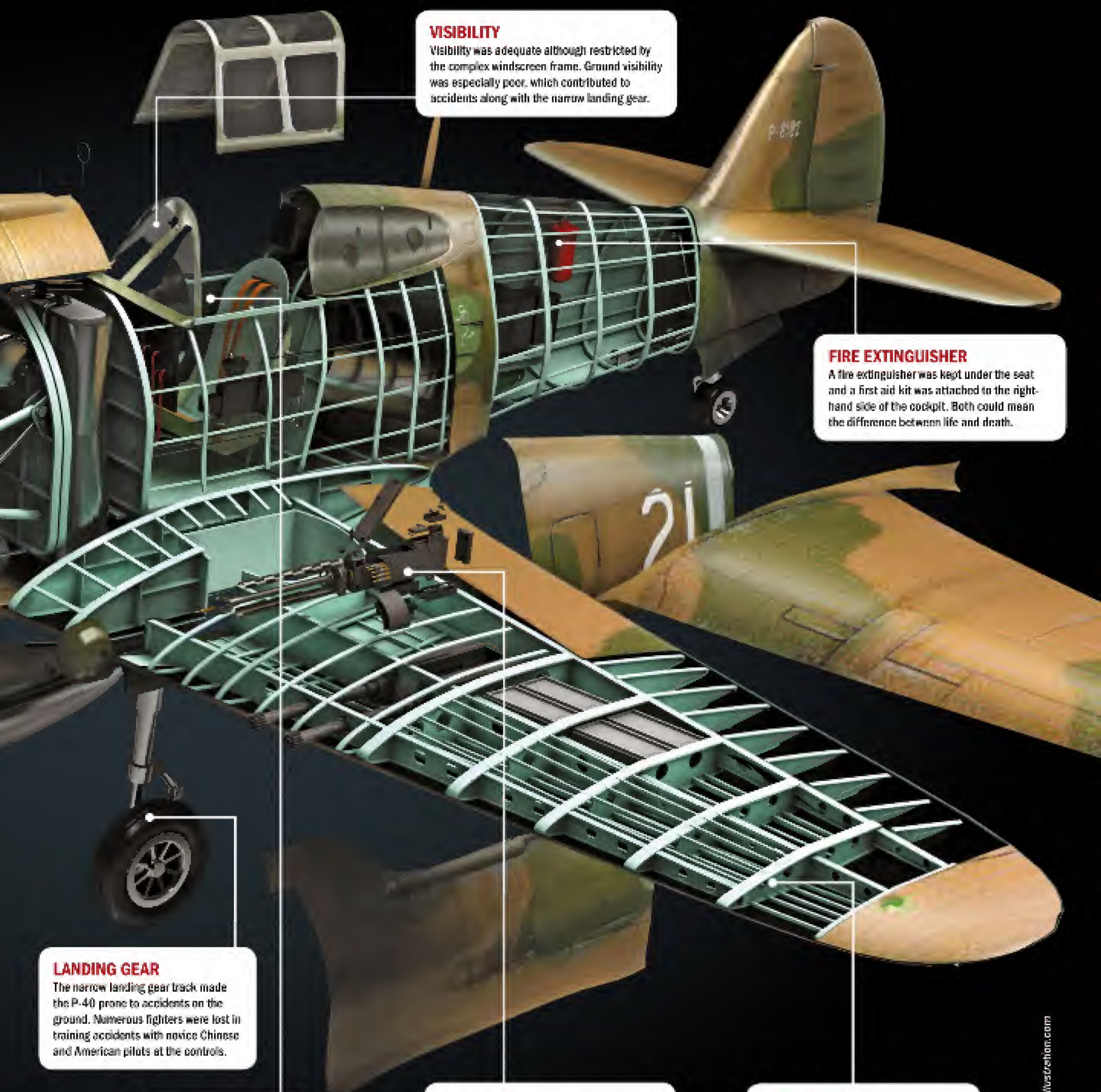
MOUTH & EYE

The distinctive shark's mouth and menacing eye became world famous as emblems of the Flying Tigers. The pilots painted the nose cowls of their P-40s to strike fear in the hearts of enemy airmen.

ENGINE

The Allison V-1710 12-cylinder liquid-cooled engine produced 1,350 horsepower and a maximum speed of 378 miles per hour. The V-1710 was the only engine of its kind produced in the United States during World War II.

"CHENNAULT ADMONISHED HIS PILOTS TO BE WARY OF THE NIMBLE ENEMY PLANES AND TO AVOID SINGLE COMBAT. 'NEVER GET INTO A DOGFIGHT WITH THE ZERO,' HE TOLD THEM. 'WHEN YOU SPOT THE ZEROES, MAKE ONE DIVING RUN WITH GUNS BLAZING, AND THEN GET THE HELL OUT OF THERE!'"

**VISIBILITY**

Visibility was adequate although restricted by the complex windscreen frame. Ground visibility was especially poor, which contributed to accidents along with the narrow landing gear.

FIRE EXTINGUISHER

A fire extinguisher was kept under the seat and a first aid kit was attached to the right-hand side of the cockpit. Both could mean the difference between life and death.

LANDING GEAR

The narrow landing gear track made the P-40 prone to accidents on the ground. Numerous fighters were lost in training accidents with novice Chinese and American pilots at the controls.

COCKPIT

The armoured cockpit absorbed punishment and contributed to pilot survivability. In contrast, Japanese aircraft were lightly armoured and quite susceptible to explosions in midair.

ARMAMENT

.50-calibre Browning M2 machine guns provided heavy firepower. Some variants of the P-40 also mounted .30-calibre machine guns; however, the heavier Browning M2 was more effective against enemy targets.

AIRFRAME

The steel airframe made the aircraft heavy and rugged. Such construction made the P-40 capable of absorbing tremendous amounts of enemy fire and bringing its pilot home safely. Ground crewmen patched damaged aircraft and got them back into the air as rapidly as possible.



toothed jaws, and soon the Chinese began referring to the mercenary pilots as 'Flying Tigers'. The nickname stuck, and a cartoonist from Walt Disney Studios complemented the gaping sharks' mouths with the image of a stylish Bengal tiger wearing wings and leaping through a 'V' for victory emblazoned on the fuselages of many P-40s.

Although they flew as a combat unit for only seven months, from December 1941 to July 1942, the Flying Tigers gained lasting fame in the skies of the CBI during World War II. Training mishaps, mechanical failures – particularly with the P-40's Allison engine – and combat damage continually reduced the number of operational aircraft, and Chennault never had more than 55 planes and 70 pilots at his disposal. Still, the Flying Tigers compiled a remarkable record, debunking the myth of Japanese aerial invincibility in the process.

During those frenetic days, the AVG claimed 299 enemy planes – destroyed both in the air along with scores on the ground – shot up during dangerous strafing runs. Its top scoring aces accounted for more than 60 Japanese aircraft. They included Robert Neale with 13 victories, Ed Rector with 10.5, David Lee 'Tex' Hill with 10.25, and George Burgard, Robert Little, and Charles Older each with ten.

In turn, the Flying Tigers lost four pilots in the air to Japanese planes, six who were killed during strafing runs against ground targets, three who perished in training accidents, and three who died during enemy bombing raids. Three AVG pilots were shot down and taken prisoner. A dozen P-40s were lost in aerial combat, while another 61 were destroyed on the ground during enemy air raids, in training



Above: A 'blood chit' given to the Flying Tigers by the Nationalist Chinese government. It would be used as identification so that downed airmen could get aid from any Chinese civilian they came across

accidents, or deliberately when the airfield at Loiwing was hastily evacuated with the fall of Burma in May 1942.

Chennault initially deployed the Flying Tigers into two groups, defending both Rangoon and western China, where the Burma Road, the tortuous overland lifeline of supplies that stretched 600 miles from Lashio in northern Burma to Kunming, snaked through mountains and valleys.



The first Flying Tiger missions were flown on 8 December 1941, the day after Pearl Harbor. As word of their success became public, the pilots were lionised in the press. Following one notable air battle, a newspaper crowed, "Last week ten Japanese bombers came winging their carefree way up into Yunnan, heading directly for Kunming, the terminus of the Burma Road. 30 miles south of Kunming, the Flying Tigers swooped, let the Japanese have it," the paper continued. "Of the ten bombers, four plummeted to Earth in flames. The rest turned tail and fled. Tiger casualties: none."

Even the Japanese grudgingly acknowledged the toll the Flying Tigers were taking as the aggressive pilots employed Chennault's maxim, "Use your speed and diving power to make a pass, shoot, and break away! Never, never, in a P-40, try to outmanoeuvre and perform acrobatics with a Jap Zero. Such tactics, take it from me, are strictly non-habit forming."

Radio Tokyo issued a stern warning that AVG personnel rather enjoyed. "The American pilots in Chinese planes are unprincipled bandits," the propagandist blared. "Unless they cease their unorthodox tactics they will be treated as guerrillas." The broadcast was a veiled threat that if a Flying Tiger pilot was captured he might well be executed.

Adding to the Flying Tiger mystique was the cavalier attitude of the pilots and their disdain for military protocol. Little attention was paid to rank or station, and there was simply no such thing as a regulation uniform. Footwear included cowboy boots with thick heels. The pilots also engaged in aerial antics, performing aerobatic feats and slow, low victory rolls to celebrate kills when they returned from combat missions.

CHRISTMAS COMBAT

PERHAPS THE MOST DRAMATIC ENGAGEMENT OF THE FLYING TIGERS' BRIEF COMBAT HISTORY TOOK PLACE ON CHRISTMAS DAY, 1941

On 25 December 1941, the Japanese launched their second heavy air raid against Rangoon, the Burmese capital, in 48 hours. At Mingaladon airfield, north of the city, Christmas Day was a muggy 48 degrees Celsius, smothering the pilots of the Flying Tigers' 3rd Squadron, the Hell's Angels. Suddenly, the air raid siren wailed. 13 Hell's Angels pilots sprinted to their Curtiss P-40 Tomahawk fighters, joined by 16 pilots of No 67 Squadron RAF flying the Brewster Buffalo.

Just past noon, the characteristic V-formations of 71 enemy bombers and at least 30 fighters appeared. Charles Older, who had felled two enemy bombers on 23 December,

roared upward in a near-vertical climb, opening fire at 200 yards and tearing an enemy plane apart with his six .50-calibre machine guns. Executing a flawless 'boom and zoom', he broke away in a power dive and made another pass. This time, a second bomber fell to his guns.

When the Japanese turned toward home, Older pounced on an escorting Nakajima Ki-43 'Oscar' fighter and sent it spiralling earthward for his fifth kill. He had become an ace.

Flying Tiger Robert P 'Duke' Hedman was credited with four Japanese bombers and a fighter, attaining the coveted status of ace in a single day. George McMillan shot down three

enemy planes, while Tommy Haywood and Ed Overend each claimed a pair to their tally.

As Robert 'RT' Smith pulled away from his second kill against the bombers, he confronted an Oscar slicing toward him head-on, guns blazing. Smith held steady. His P-40 shuddered as bullets from its guns raked the enemy. In a flash, the Japanese plane passed below, billowing smoke before rolling over and plunging into the Gulf of Martaban. The Flying Tigers and their RAF allies claimed 32 aerial victories in the swirling Christmas Day battle, while only two P-40s were shot down along with four Buffaloes.

The Japanese expected the Ki-43 Oscar to perform well against Curtiss P-40s





General Henry 'Hap' Arnold
inspects the Flying Tigers
squadron with Claire Chennault



Maintenance on a Curtiss
P-40 at Kailu, China,
circa 1942

Alcohol flowed freely, and one story relates that a group of Flying Tigers persuaded the pilot of a C-47 transport plane to conduct a nocturnal "air raid" on Hanoi. The Americans scrounged for any explosives they could find, including old ordnance of French and even Russian manufacture. Fortified with liquid courage, they packed the C-47's cargo hold with bombs. When they arrived above their target, they reportedly opened the side door, kicking and rolling the explosives into the night.

Before Chennault withdrew all AVG fighters from Burma in the spring of 1942, the Flying Tigers engaged in several large-scale aerial battles with the Japanese, and their RAF allies joined in as well. On 23 December 1941, a flight of 12 Hell's Angels P-40s along with Brewster Buffalo fighters of No 67 Squadron RAF engaged a formation of Japanese Ki-21 bombers headed for Rangoon. The Allied planes shot down five bombers and four escorting fighters, but a pair of P-40s was lost. Despite the better kill results, Chennault considered the mission a setback since he had few planes or pilots to spare.

On 25 February 1942, a force of 166 Japanese fighters and bombers attacked Rangoon. Nine Flying Tiger pilots gunned the engines of their P-40s and descended on the enemy like avenging angels. 24 Japanese aircraft were shot down in flames, while three P-40s were lost.

A day later, 200 more Japanese aircraft appeared above the city, and six Flying Tiger P-40s mounted a spirited defence, roaring through the Japanese formations to claim 18 enemy planes destroyed.

19 Flying Tiger pilots were officially credited with five or more confirmed aerial victories during their combat tours with the AVG, achieving ace status. Tex Hill served as a flight leader and squadron commander with the Panda Bears and, in addition to his 10.25 kills with the AVG, finished the war with 15.25. He scored his first

aerial victories on 3 January 1942, during a strafing mission against the Japanese airfield at Tak, Thailand, and vividly recalled the encounter.

"I was really excited as we neared the target area. It was then that I noticed there were too many of us in formation," Hill remembered. "Somehow a Japanese Zero swooped in and got on the tail of the P-40 in front of me. I pulled the trigger, fired my machine guns, and shot the Zero down. Unknown to me there was another Zero up there with us, but I didn't see him in time. He put 33 bullet holes in my P-40 fuselage before I could break away.

"Later, during that same mission, another Jap came in straight at me – head on!" Hill continued. "I held the machine-gun trigger down. We got closer and closer. I thought we were going to collide, but he just blew up in front of me. I never touched a piece of his wreckage either."

Although Hill identified his victims as Zeroes, other accounts refer to them as a pair of Ki-27s. Chennault also had described enemy fighters as Zeroes, and debate continues as to whether the Flying Tigers actually fought the fabled Japanese plane during their seven months of aerial combat. Some sources support the claim that the P-40 pilots did battle Zeroes, while others assert that the Imperial Japanese Navy had withdrawn its assets from the Asian mainland prior to the AVG's entry into combat. In either case, the majority of enemy fighters that the American pilots duelled in the air above China and Burma were Ki-27s, nicknamed 'Nate' by the Allies, and the Ki-43 'Oscar', a Japanese Army fighter that bore a close resemblance to the Zero – accounting for some confusion.

Through it all, the Flying Tigers' ground crews performed minor miracles, managing to keep enough P-40s in the air to continually battle the Japanese. Damaged planes were cannibalised for spare parts. Supplies were scarce, and those that did arrive had travelled an immense

distance across ocean, by rail, and in the air. Despite having no bomb racks fitted to their planes, the Flying Tigers even improvised some explosives, rigging pipe bombs to parachutes originally intended for flares and filling empty scotch and whiskey bottles with gasoline as makeshift incendiaries.

During an interview with a war correspondent, one Flying Tiger pilot asked the reporter to, "Save some big words for our ground crews. They have gone through strafings, dodged bombs, and have always been out there working on our planes at all hours."

On 4 July 1942, the American Volunteer Group was officially disbanded. Reconstituted as the China Air Task Force of the US Army Air Forces, the squadrons later joined the 23rd Fighter Group of the Fourteenth Air Force, which subsequently adopted the nickname of the Flying Tigers. Five veteran AVG pilots, including Tex Hill, remained with the 23rd Fighter Group to train new pilots.

Meanwhile, in April 1942, Claire Chennault returned to the Army Air Forces with the rank of colonel, commanding the China Air Task Force. His weathered face made the cover of the 10 August 1942 issue of *Life* magazine. Even though the Flying Tigers had ceased to exist as an independent fighting force a month earlier, their exploits remained popular with the media.

In March 1943, Chennault was promoted to the rank of major general and given command of the Fourteenth Air Force, a post that he held until August 1945. He retired that October and died in Washington, DC, at the age of 67 on 27 July 1958.

The legacy of the Flying Tigers is one of grit, determination, and bravery against overwhelming odds. Surely this handful of American pilots should continue to capture the imagination today not solely because they dared to take on the Japanese – but also because they consistently bested their enemy in the air.



TIGER ROLL CALL

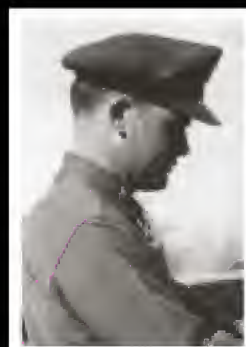
A NUMBER OF FLYING TIGER PILOTS ACHIEVED SUCCESS DURING AND AFTER THEIR DAYS WITH THE FAMOUS FIGHTER GROUP



**BRIGADIER GENERAL DAVID
LEE 'TEX' HILL**

Tex Hill served as both a flight and squadron commander with the Panda Bears and remained in China to train pilots and lead the 23rd Fighter Group of the US Army Air Forces, ending the war with 15.25 aerial victories. After World War II, Hill engaged in mining, ranching, and oil speculation. He remained in the Army Reserve and in 1946 became the commander of the newly formed Texas Air National Guard. Promoted to brigadier general

at the age of 31, he was the youngest general officer in the history of the Air National Guard. Hill retired from duty in 1968 and became a frequent guest at air shows and events commemorating the Flying Tigers around the world. In 2002, he received the Distinguished Service Cross for valour, 60 years after the engagement for which he was being recognised. Hill died at his home in Texas in 2007. He was 92 years old.

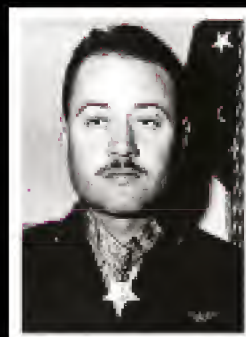


COLONEL ED RECTOR

Ed Rector was serving as a naval aviator, flying from the aircraft carrier USS Ranger, when he resigned his commission to join the American Volunteer Group. Rector scored the Flying Tigers' first aerial victory against the Japanese in combat above the Chinese city of Kunming on 20 December 1941. He was the second-highest scoring ace of the AVG with 10.5 kills and went on to command the 76th Fighter Squadron of the 23rd Fighter Group, shooting down two enemy fighters on 25 September 1942. As commander of the 23rd Fighter Group, he recorded

his last kill, and reportedly the last for the unit, on 2 April 1945. Rector remained in China after the war, serving as a military advisor. He retired from the US Air Force in 1962 and worked as an aviation consultant in numerous countries. He died on 26 April 2001 at the age of 84.

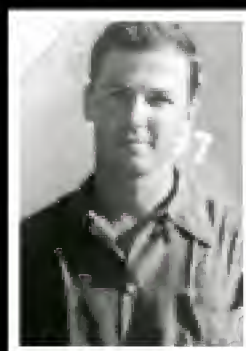
"RECTOR SCORED THE FLYING TIGERS' FIRST AERIAL VICTORY AGAINST THE JAPANESE IN COMBAT ABOVE THE CHINESE CITY OF KUNMING ON 20 DECEMBER 1941"



**COLONEL GREGORY
'PAPPY' BOYINGTON**

The best known of the Flying Tigers, Colonel Gregory Boyington, served as a flight leader with the AVG and was credited with two Japanese planes. Originally a Marine pilot, Boyington rejoined the Corps in September 1942 and became famous commanding Fighter Squadron 214 (VMF-214), the 'Black Sheep', in the Solomons. At 31, Boyington was older than the other pilots. They called him 'Pappy'.

Boyington became the top Marine ace of World War II with 28 victories. He received the Medal of Honor for an engagement in which 24 Corsairs shot down 20 enemy fighters with no losses. On 3 January 1944, Boyington had just flamed his 28th enemy plane when he was shot down. He spent 20 months in a prison camp. Boyington retired from the Marines in 1947 and worked at various jobs. The television series *Baa Baa Black Sheep*, more fiction than fact, brought notoriety. He died at the age of 75 on 11 January 1988.



**LIEUTENANT COLONEL
CHARLES OLDER**

A leading AVG ace, Charles Older entered flight training with the US Marine Corps after graduating from college in 1939. He resigned to join the AVG in the summer of 1941 and participated in aerial engagements above Rangoon, Burma, in December.

Flying with the 3rd Squadron, Hell's Angels, Older completed his AVG tour with ten victories. Returning to the US in the summer of 1942, he joined the US Army Air Forces. He later served in China as

operations officer and deputy commander of the 23rd Fighter Group. At the end of World War II, he had tallied 18 kills.

After the war ended, Older graduated with a law degree from the University of Southern California. In 1967, Governor Ronald Reagan appointed him to Superior Court in Los Angeles. Judge Older presided over the trial of notorious murderer Charles Manson. He died at his home in Los Angeles on 17 June 2006 at the age of 88.

"FLYING WITH THE 3RD SQUADRON, HELL'S ANGELS, OLDER COMPLETED HIS AVG TOUR WITH TEN VICTORIES"



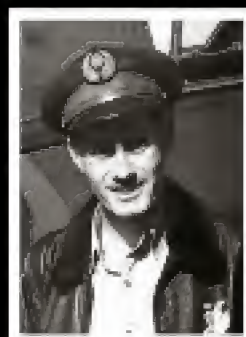
**MAJOR GENERAL
CHARLES BOND**

A US Army Air Forces pilot, Charles Bond, resigned his commission, arriving in Burma on 12 November 1941, to join the Flying Tigers. He was credited with seven aerial victories and was shot down twice. Some historians credit Bond as the first Flying Tiger to paint the famous shark mouth on his P-40 fighter.

In October 1942, Bond rejoined the Army Air Forces, serving as the pilot for W Averell Harriman, US Ambassador to the Soviet Union. After World

War II, he worked as a commercial pilot before returning to the military. In the 1950s, he commanded the 25th and 28th Air Divisions. During the Vietnam War, he led the 2nd Air Division and the 12th and 13th Air Forces.

Bond retired in 1968. In 1984, his book, *A Flying Tiger's Diary*, became a bestseller. Bond served as a consultant for Texas Instruments and died on 18 August 2009, at the age of 94.



**LIEUTENANT COLONEL
ROBERT T. SMITH**

Robert T. Smith was an early Flying Tiger commitment, resigning from the US Army Air Forces in July 1941. He flew his first combat mission on 23 December, shooting down a Japanese bomber while sharing credit for another. On Christmas Day 1941, Smith shot down three enemy planes. He became flight leader in the AVG's 3rd Squadron, the Hell's Angels. When the AVG was disbanded, he had tallied 8.9 aerial victories.

Soon Smith returned to the Army Air Forces. He commanded the 337th Fighter Squadron, the 329th Fighter Group, and the 1st Air Commando Group, leading medium bombers and flying fighter escort missions.

After retiring from the military, Smith flew as a commercial pilot, wrote radio scripts, and worked for the Flying Tiger Line, the first air cargo company in the US. He published a book, *Tale of the Tiger*, based on his diaries. Smith died on 21 August 1996, at the age of 77.

"19 FLYING TIGER PILOTS WERE OFFICIALLY CREDITED WITH FIVE OR MORE CONFIRMED AERIAL VICTORIES DURING THEIR COMBAT TOURS WITH THE AVG, ACHIEVING ACE STATUS"



American Volunteer Group pilots make their way to their planes after an air raid siren sounds

Images: Albany, Mary Evans, Getty, Rex Features



A Flying Tiger veteran photographed in front of an image of his comrades, at Kunming Museum, China



BIRTH OF THE BOMB

The development and use of the atomic bomb against Japan during World War II changed the course of human history

They called it 'the gadget', but it was much more than the simple nickname implied. It was literally earthshaking. And when it was successfully deployed, the world had entered the Atomic Age.

The men who sought to develop the atomic bomb were perhaps the greatest assemblage of scientists, theoretical physicists, and mathematicians, many of them Nobel laureates, ever to collaborate, and in the midst of World War II they came together with a sense of urgency to complete the task. The idea of an atomic bomb had been around since the early 20th century, and in 1904 British scientists had concluded that such a weapon was possible with the release of radioactive energy.

Hungarian physicist Leo Szilard was convinced that the production of a sustainable nuclear chain reaction could produce immense destructive power. By late 1939, the world was at war. Britain and France battled Nazi Germany, and as Hitler's war machine engulfed Europe many of the continent's most eminent scientists had fled Germany and Nazi-occupied countries, either to avoid persecution for their Jewish faith or due to their opposition to the Nazi regime. Among these eminent scientists was Albert Einstein, a Jew who left Germany in 1933 and emigrated to the United States.

Szilard believed that German scientists were pursuing the development of an atomic bomb and with fellow physicists Eugene Wigner and Edward Teller called on Einstein, convincing him to join them in a letter to President Franklin D Roosevelt, warning of the unthinkable Nazi threat and urging the US government to take action to develop its own atomic bomb. The

letter reached Roosevelt in October 1939, convincing him to create a Uranium Committee, initially to fund the research of Italian physicist Enrico Fermi, a refugee from the fascist regime of Benito Mussolini.

Fermi assembled a team of outstanding researchers at the University of Chicago intent on conducting the world's first nuclear chain reaction before the Germans did. On 2 December 1942, working within a modified squash court, Fermi's group succeeded. The event gave momentum to the Allied effort to develop the bomb. American scientists had visited Britain in 1941 and been impressed with nuclear research conducted there, and quickly the US government authorised the Manhattan Project, one of the costliest and most extensive initiatives undertaken during World War II. By June 1944, it employed 129,000 workers.

However, in the beginning the task of organising the endeavour seemed monumental. Research was being conducted all over the United States, and for efficiency alone it had to be concentrated. In September 1942, responsibility for the Manhattan Project was handed to the War Department, and Lieutenant Colonel Leslie R Groves was placed in command. Groves was highly driven and inspirational but lacked tact and at times did not relish his leading role in working with those he called a "collection of crackpots".

Major facilities were located at Oak Ridge, Tennessee, where the enrichment of uranium, the element most likely to produce a nuclear reaction, was to occur. At Hanford, Washington, an expansive production complex was built to produce plutonium. Early research had focused on the stable uranium isotope U-235;

"SZILARD AND OTHER LEADING PHYSICISTS SIGNED A LETTER TO PRESIDENT FRANKLIN D ROOSEVELT, WARNING OF THE UNTHINKABLE NAZI THREAT AND URGING THE US GOVERNMENT TO TAKE ACTION TO DEVELOP ITS OWN ATOMIC BOMB"



The mushroom cloud of the atomic bomb detonation on 9 August 1945 billows above the city of Nagasaki





A mock-up of Fat Man, the implosion bomb that devastated Nagasaki, is shown in this rather sterile image

"AFTER BEING SWORN IN, TRUMAN WAS FULLY BRIEFED ON THE PROGRESS TOWARD THE ATOMIC BOMB, AND THE DECISION WHETHER TO USE THE WEAPON FELL SQUARELY IN HIS LAP"

New Mexico a short distance from the city of Santa Fe. The location was a closely guarded secret, and its only mailing address was Post Office Box #1663, Santa Fe. During the course of World War II, Los Alamos became home for scores of scientists and thousands of workers and support staff.

Fermi's success with a sustained chain reaction achieved through nuclear fission had proven that it was possible to develop a nuclear weapon. The task of the Manhattan Project scientists became the methodology to maintain the nuclear material in a stable form until the weapon reached the predetermined point of detonation. The scientists eventually resolved the issue with two options. The first, or gun-type bomb, involved two separate masses of nuclear substance, one of them being fired into the other to achieve a detonation. The second required the placement of plutonium between two quantities of conventional explosives. The ignition of the conventional charges would cause the plutonium to collapse and then expand, generating a massive detonation. This was referred to as an 'implosion type' bomb.

The Manhattan Project was so secretive that President Roosevelt chose not to inform Vice President John Nance Garner, of its existence. When Roosevelt was elected to an unprecedented fourth term in office in November 1944, he again chose not to divulge any information on the Manhattan Project to his new vice president, Harry Truman, who only learned of its existence after Roosevelt died of a cerebral haemorrhage on 12 April 1945. After being sworn in as president, Truman was fully briefed on the progress toward the atomic bomb on 24 April 1945, and the decision whether to use the weapon against Japan fell squarely in his lap.

At the Potsdam Conference in August, Truman chose to disclose the

existence of the atomic bomb to Soviet leader Joseph Stalin. "On July 24, I casually mentioned to Stalin that we had a new weapon of unusual destructive force," Truman wrote in his 1955 book *1945: Year of Decisions*. "The Russian premier showed no special interest. All he said was he was glad to hear it and hoped we would make good 'use of it against the Japanese'." Evidence indicates that Stalin already had some idea that the United States was close to achieving a viable nuclear weapon.

Eight days before his disclosure to Stalin, President Truman had been informed of the successful test detonation of the world's first atomic bomb, codenamed Trinity. On 16 July 1945, senior military officers, distinguished guests, and many of the scientists who had laboured for more than two years gathered at Alamogordo in the Jornada del Muerto Desert of New Mexico, 56 kilometres from the town of Socorro. Jornada del Muerto, incidentally, translates loosely from the historical Spanish as 'journey of the dead man'.

The dignitaries were herded into reinforced concrete and steel bunkers 9,100 metres away from the place where the bomb was suspended from the top of a 30-metre steel tower. At 5.29am, the detonation was triggered. A brilliant glow lit the sky in a radius of 32 kilometres. An enormous fireball erupted, and smoke billowed to an altitude of 3,000 metres. The light from the explosion was visible more than 180 kilometres away, and in the town of Gallup, New Mexico, 380 kilometres distant, windows were shattered. Eventually, the ensuing radioactive cloud towered to 12,500 metres above the desert floor. When Oppenheimer witnessed the awesome sight, he murmured a verse from the Bhagavad Gita, the holy scripture of the Hindu faith. "Now I am become Death, the destroyer of worlds."

however, the rate of refining enough U-235 to build a bomb was agonisingly slow. While the enrichment process generated little U-235, an abundance of another isotope, stable U-238, which could not sustain a chain reaction, was also produced. The prospect of producing the radioactive element plutonium from U-238 seemed more expedient even though plutonium was unstable, bringing into question its use in an atomic weapon. Groves, who eventually rose to the rank of major general, chose to pursue both paths simultaneously and set a 36-month timetable for the successful development of an atomic bomb.

Concurrently, Groves gambled. He chose J Robert Oppenheimer, a theoretical physicist from the University of California, Berkeley, to lead the Manhattan Project's scientific team and immediately took criticism. Oppenheimer was not a Nobel Prize recipient. His work was in the realm of theory rather than practical, hands-on research. Further complicating the situation was the fact that the FBI considered his leaning to the political left a security risk and would not grant Oppenheimer clearance. Groves defied the FBI, pulled some strings, and put Oppenheimer in charge. As the head of the bomb team, he worked with such luminaries as Teller, Wigner, Fermi and renowned Danish physicist Niels Bohr. Groves also directed the construction of a laboratory facility to accommodate the researchers, providing work spaces and living quarters. The site chosen was at Los Alamos in the desert of

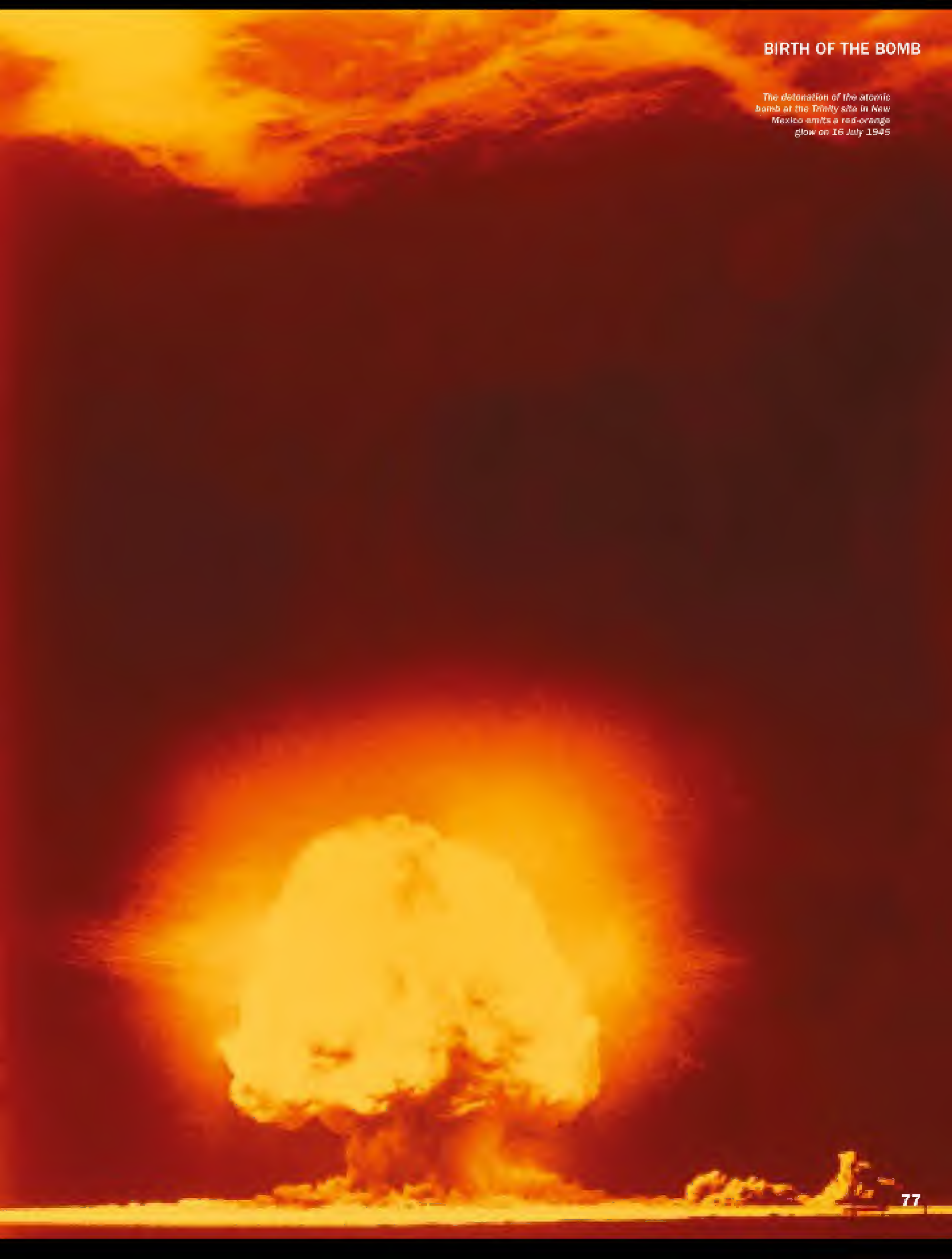
Hungarian-born physicist Edward Teller worked at Los Alamos and later became the father of the more powerful hydrogen bomb



J Robert Oppenheimer, left, stands with Major General Leslie Groves at ground zero, Trinity site, in September 1945



The detonation of the atomic bomb at the Trinity site in New Mexico emits a red-orange glow on 16 July 1945





Female workers at the Y-12 uranium enrichment facility in Tennessee



The sprawling K-25 plant in Oak Ridge, Tennessee



Physicist, 1935 Nobel Prize recipient, and leader of the British mission to Los Alamos, James Chadwick, left, confers with General Leslie Groves



On 31 July 1945, President Truman gave Secretary of War Henry L. Stimson a handwritten note that was authorising the use of the atomic bomb against Japan no sooner than 2 August.

General Groves was also responsible for the delivery of the atomic bomb, and on 17 December 1944, the 509th Bombardment Group (Composite) was formed at Wendover Field in Utah, to train for the sole purpose

of dropping the new weapon on any chosen location. Colonel Paul W. Tibbets, a 29-year-old veteran pilot who had earlier participated in the first American bombing raid against Nazi-occupied Europe, assumed command, and the aviators trained without specific knowledge of their highly classified mission. Although the British Avro Lancaster heavy bomber had already carried conventional bombs that were similar in size to the nuclear devices, the

Americans wanted an American plane for the purpose, and the Boeing B-29 Superfortress was chosen and modified to accommodate the atomic bomb.

Four Japanese cities, Kokura, Kyoto, Hiroshima and Nagasaki, had sustained little damage from earlier American air raids. These were initially chosen as potential targets for the first of two potential missions. Kyoto was subsequently removed from the list because it was home to several sacred religious shrines, and the decision was made to drop the first atomic bomb on Hiroshima, a manufacturing centre of around 350,000 people. Hiroshima was selected as a location by the American government because of a significant military installation in the city, the presence of a T-shaped bridge that would present a good target for a B-29 bombardier, and the fact that there were no major Allied prisoner-of-war camps known to be in the area.

During the days leading up to the Hiroshima mission, American planes dropped thousands of leaflets warning the residents to evacuate the city.

On the morning of 6 August 1945, Tibbets revved the four engines of his B-29, named *Enola Gay* after his mother, as it sat on the runway on the island of Tinian in the Marianas, 2,530 kilometres from the target. *Enola Gay* then roared down the airstrip, straining with the burden of its nuclear payload, and powered into the morning sky. The atomic bomb aboard was nicknamed *Little Boy*, a gun type weapon.

At 8.15am local time, *Enola Gay*'s bomb bay opened, and the bombardier released *Little Boy*, which plummeted earthward and detonated at 580 metres above Shima Hospital in the centre of Hiroshima. In a blinding flash, the bomb delivered a nuclear payload equal to 12,500 tons of TNT.

THE FERMI FAMILY FLEES

ANTI-JEWISH LAWS IN FASCIST ITALY COMPELLED ENRICO FERMI AND HIS FAMILY TO EMIGRATE TO AMERICA

When the Italian fascist government of Benito Mussolini began enacting a series of laws intended to persecute, intimidate and control virtually every aspect of the lives of Italian Jews, one of those caught in the clutches was Laura Capon Fermi, wife of noted physicist Enrico Fermi.

Born in Italy on 29 September 1901, Fermi had already emerged on the world stage as both a theoretical and experimental physicist. He came to prominence during the 1920s and received the Nobel Prize in Physics in 1938 for proving that newly discovered radioactive elements could be produced through neutron irradiation and the revelations related to nuclear reactions precipitated by slow neutrons. In the same year that he received the Nobel Prize, Fermi was forced to make a life-changing and history-altering decision. The family had to get out of Italy and travelled to Stockholm, Sweden. In December 1938, to receive the Nobel Prize just as the Italian government was implementing the odious new racial laws. When the ceremonies concluded, they did not return to Italy. Instead, they sailed to New York City, arriving on 2 January 1939. They applied for permanent residency and became American citizens.

One of the unintended consequences of the racial laws enacted in Nazi Germany and Fascist Italy against Jews and other ethnicities was to deliver into the hands of the United States the services of several of the foremost living scientists in the study of nuclear energy. Fermi went on to play a critical role at Los Alamos in the development of the atomic bomb, particularly as his team at the University of Chicago unleashed the world's first sustained nuclear chain reaction in December 1942.

Described as the father of both the atomic bomb and the nuclear age, Fermi died of stomach cancer in Chicago at the age of 53 on 28 November 1954.



Instantly, a white mushroom cloud rose above the stricken city. Scarcely a second elapsed before ten square kilometres of Hiroshima were levelled and 80,000 people were killed, vaporised where they stood or consumed in the searing heat that reached 300,000 degrees Celsius. Some left their shadows on the pavements as the detonation created a sort of macabre photographic process. Sometime later, radioactive black rain began pelting down on the scene of utter destruction.

Aboard Enola Gay, the Americans were awed. Initial cheers gave way to an eerie silence. Co-pilot Captain Robert A Lewis exclaimed, "My God, what have we done?" Postwar casualty estimates in Hiroshima topped 140,000, many of the dead having suffered from radiation poisoning after the blast.

Three days later, on 9 August, Major Charles W Sweeney piloted another B-29, Bock's Car, carrying the implosion bomb nicknamed Fat Man, and flying from Tinian at 3.47am. The primary target, Kokura, was obscured by clouds, and the alternate target, Nagasaki, an industrial centre and producer of munitions for the Japanese military, suffered severe damage. At 11.02am, after a 43-second freefall, Fat Man exploded at an altitude of 500 metres, three kilometres from its intended detonation point. Still, the result was horrifying as roughly 40,000 people perished in smoke, fire and heat. Another 40,000 died from radiation sickness in the aftermath.

Within days of the bombing of Nagasaki, Japan had surrendered to the United States. Theory, conjecture, protest and sorrow have followed in the wake of the atomic bomb and the atrocities caused by it. A nuclear arms race and an era of uncertainty have haunted mankind ever since. But ultimately, the gadget had served its purpose.

OPPENHEIMER AND OPINION

DOGGED BY ACCUSATIONS OF COMMUNIST LEANINGS, J ROBERT OPPENHEIMER REMAINED EQUAL TO THE LOS ALAMOS TASK

J Robert Oppenheimer's wife and brother-in-law were members of the Communist Party at one time or another. However, the leader of the scientific team that developed the atomic bomb may never have officially joined himself. Like many other socially aware individuals during the 1930s, he did offer financial support to liberal endeavours. He also hosted fundraising events for Republican forces in the Spanish Civil War.

Oppenheimer soon came under the watchful eye of the Federal Bureau of Investigation and was labelled a left-wing sympathiser. In 1936, he was romantically involved with Joan Tatlock, a Stanford University medical student who wrote for a communist party affiliated newspaper, *The Western Worker*. He continued his affair with her after his marriage to Kathryn Peuning Harrison in November 1940, and when he completed a personal security questionnaire for the Manhattan Project in 1942, he wrote that he had been associated with "...just about every Communist Front organisation on the West Coast".

Years later Oppenheimer claimed he did not remember writing the answer, denied the remark, and also noted that it was merely a "half-jocular overstatement".

During the 1950s, Oppenheimer suffered repercussions for his left-wing political stance. He served as chairman of the General Advisory Committee of the Atomic Energy Commission;



however, his opinions rankled powerful politicians, and his security clearance was revoked in 1954 following a highly publicised hearing. Although he continued to teach, write and lecture, his political influence waned. In 1963, President John F Kennedy brought Oppenheimer back into a positive perspective, designating him to receive the prestigious Enrico Fermi Award in acknowledgment of his scientific achievements. After Kennedy's assassination, President Lyndon B Johnson presented the award.

A heavy smoker, Oppenheimer was diagnosed with throat cancer in 1965 and died at his New Jersey home on 18 February 1967, at the age of 62.



A mock-up of the gun-type atomic bomb *Little Boy*, dropped on Hiroshima on 6 August 1945, is shown in this postwar image



HERO OF THE KOREAN WAR

Benjamin F Wilson led the charge in an uphill struggle, single-handedly taking on communist forces in Korea to protect his platoon

The Medal of Honor is the highest military honour in the United States, awarded for personal acts of 'conspicuous gallantry' and going beyond the call of duty.

The medal was awarded to First Lieutenant Benjamin F. Wilson by President Eisenhower himself for the officer's heroic actions single-handedly taking on enemy forces during the Korean War. Despite serving in two wars, Wilson's military career almost passed entirely without distinction of any kind. He enlisted in the US Army in 1940 aged 18, seeking escape from his sleepy seaside home in Washington. Stationed at Schofield Barracks, Hawaii, he reached the rank of Corporal when the Japanese attacked Pearl Harbor on 7 December 1941. There is little known about Wilson's actions on that day, though he once joked that the Japanese bombing woke him up from a rare lie-in.

He was later commissioned as a Second Lieutenant in 1942, after attending the Officer Candidates School. But despite frequently applying for combat service, Wilson's WWII experience passed peacefully, with the Army keeping him stateside in training roles.

Having never seen active duty, when the war was over Wilson resigned his commission and returned home to Vashon Island, Washington. However, working in the lumber mills didn't agree with him, and he was back in uniform within nine months. Even with the looming threat of the USSR in the Cold War, the United States Army was thinning its ranks, and recruitment officers told Wilson they had no need for a lieutenant, even an experienced one. Wilson was more interested in action than rank, so re-enlisted as a private recruit all over again and was sent to Korea.

It was here that Wilson finally got the chance to prove himself in battle. By the



FOR VALOUR

The USA's highest military honour is awarded to members of the armed forces for exceptional acts of valour in combat. This is when service personnel have gone beyond the call of duty, often placing themselves in difficult situations beyond reasonable expectation.

WHY DID HE WIN IT?

For showing outstanding bravery in both leading the charge against an enemy force and providing cover fire so that his troops could safely retreat. He even received a life-threatening injury.

WHERE WAS THE BATTLE?

Near Hwachon-Myon, South Korea

WHEN DID IT TAKE PLACE?

5 June 1951

WHEN WAS HE AWARDED THE MEDAL?

7 September 1954

WHAT WAS THE POPULAR REACTION?

While Wilson's exploits were not widely reported in the press, he was honoured with a Distinguished Service Cross and Purple Heart, along with his Medal of Honor, and later went on to become a Major.

summer of 1951, his experience had seen him promoted to First Sergeant in Company I, 3rd Battalion, 31st Infantry Regiment, part of the 7th Infantry Division. On 5 June, his company was charged with taking the largest hill overlooking the Hwachon Reservoir. Also known as Limbo's Dam, or Hell's Waiting Room, the dam had proven a focal point for fighting between Allied and Communist forces in recent months.

The hydroelectric dam was not only a strategic asset, because it was a source of power for South Korea, but also because it could be used to flood downstream areas. At

midnight on 8 April 1951, Chinese and North Korean forces captured the dam and opened the spillway gates, raising the Han River level by four feet and washing away five floating bridges. These included connections to the United Nations Command – the headquarters of the multinational Allies in Korea.

The Allies' initial attempts to take back the reservoir were beset by problems. The 7th Cavalry Regiment attacked north towards the dam, but only made it within half a mile before being pushed back by Communist forces. As well as the enemy holding the higher ground, the terrain made ground assaults on the reservoir even more challenging for the Allies. The hilly countryside and poor roads meant that armoured vehicles couldn't make it to the dam, while it was also much harder to transport artillery, so only one battery of 155mm howitzers could range the dam, rather than the three battalions that were assigned. This also made it difficult to deliver boats for amphibious assault on the dam.

Ultimately, the Allies were only able to stop enemy forces from using the dam as a weapon with the help of air support. On 30 April, AD-4 Skyraiders dropped 2,000-pound bombs on the reservoir, along with rocket fire. However, this still wasn't enough to destroy the 20-foot-tall and 40-foot-wide steel flood gates, which were reinforced with concrete. Eight Skyraiders had to return the next day armed with MK13 air torpedoes – the last time this weapon was ever used in combat – to be able to destroy one sluice gate and damage many others.

Though the attack had negated the military value of the dam, the Allies still wanted to regain control of it. Wilson's company had been sent to capture the nearby summit, which in the coming days would earn the nickname 'Hell Hill'. Wilson was soon caught in a literal uphill struggle, with his men



President Eisenhower shaking hands with Benjamin F. Wilson

THE KOREAN WAR

The Korean War began on the 25 June 1950 when North Korean forces, bolstered by Soviet arms and aid, moved south and captured Seoul. It is still not known whether it was a Soviet or North Korean idea to press southwards. The arrival of UN, US and British troops in September repelled the advance as the northern forces were driven back into their lands. The momentum was with the southerners but this changed with Mao Zedong's introduction of 180,000 Chinese soldiers into the fray. The UN troops were wary of this new threat so stabilised their lines rather than advancing as quickly as they had done previously. The frontline would continue to fluctuate for three years until a stalemate was called on 27 July 1953.



05 A last stand
While the rest of the company evacuates, Wilson charges forward. He shoots three more enemy soldiers, and even when the North Koreans wrestle his rifle from him, he kills four more using a shovel. Though Wilson is unable to keep the hill, his delaying action enables his comrades to reorganise and make an orderly withdrawal.

03 Counter strike
While friendly forces are consolidating the newly won gains, Communist forces hit back in greater numbers. Realising the risk of being overrun, Wilson again leads a lone-man charge, killing seven and wounding two of the enemy. The Allies pushed on within 15 yards of the peak, before having to retreat due to heavy fire.

02 Gaining ground
With the sub-machine gunners taken out, the Allies are able to push further up the hill. While his troops provide a base of fire, Wilson leads a bayonet attack further up the hill, which gains them further ground and kills 27 more North Korean soldiers.

01 Leading the charge
At the outset of the mission to take back a summit known as 'Hell Hill' from a large, entrenched North Korean force, the Allies are held back by enemy gunfire. First Sergeant Benjamin F Wilson advances solo, killing four enemies manning sub-machine guns.

PRAISE FOR A HERO

“LIEUTENANT WILSON’S SUSTAINED VALOR AND INTREPID ACTIONS REFLECT UTMOST CREDIT UPON HIMSELF AND UPHOLD THE HONORED TRADITIONS OF THE MILITARY SERVICE”

OFFICIAL CITATION FOR WILSON’S MEDAL OF HONOR

taking on a much larger enemy force that was ensconced in heavily fortified positions on the peak.

As the North Koreans rained down small arms and automatic weapon fire, preventing the Allies from being able to move forward, Wilson charged ahead, firing his rifle and throwing grenades. The heroic action killed four enemy soldiers manning sub-machine guns, allowing the Allies to get a foothold on the hill. With supporting forces providing cover fire, Wilson led a bayonet attack further up the hill, killing 27 more North Koreans.

While the company tried to consolidate its position on the hill, the enemy launched a counterattack. Lieutenant Wilson, having realized the imminent threat of being overrun, made another lone-man charge, killing seven soldiers, wounding two, and routing the remainder in disorder.

Wilson’s forces were now able to push on to within 15 yards of the summit, when enemy fire once again halted the advance. However, this time the enemy fire was far too overpowering, and he ordered the platoon to withdraw. Characteristically, Wilson remained to provide his retreating troops with cover fire – taking a bullet wound to the leg in the meantime.

With a life-threatening injury, medics tried to evacuate Wilson to a MASH station. They carried him down the hill on a stretcher, as the battle drew to an end. About halfway down the hill, Wilson’s stretcher-bearers put him down to rest. Not being one to give in easily, but clearly in pain, Wilson got up from the stretcher and made his way back up the hill in spite of his injuries. However, at this point everyone else was retreating,

so he was almost the only US soldier on the offensive.

Already injured and greatly outnumbered, Wilson pushed on against seemingly insurmountable odds. He charged the enemy ranks with his rifle, killing three enemy soldiers. When enemy soldiers physically wrestled the rifle from his hands, he pulled out his standard-issue entrenching shovel and beat four more enemies to death. This delaying action enabled his comrades to make an orderly withdrawal.

While this is the instance that earned Wilson the Medal of Honor, the story doesn’t end there. The next day he killed 33 more Chinese soldiers with his rifle, bayonet and hand grenades in another one-man assault. In the process, he reopened the wounds he suffered the day before and was finally evacuated to a hospital. He was again recommended for the Medal of Honor, but Army policy prohibited any man from being awarded more than one. Wilson received the Distinguished Service Cross instead and was commissioned when he returned to the States. He retired from the Army as a Major in 1960 and died in Hawaii in 1988.

04 Return to the fray
While his troops retreat, Wilson provides covering fire, but takes a bullet to the leg. Medics try to evacuate Wilson to a hospital, however, as soon as they put his stretcher down for a rest, he limps off back up the hill to rejoin the fight.



Hwachon Dam



Soldiers from Wilson’s 31st Battalion firing field cannon days after Wilson earned his Medal of Honor

Corbie, Ed Drake



US Marines move through the Demilitarized Zone (DMZ)

THE VIETNAM WAR

Re-examining the two-decade Cold War conflict that ended in American defeat, Communist victory and the deaths of millions

From the arrival in 1950 of the first American advisors in French-controlled Vietnam to the helicopter evacuation of American embassy staff from Saigon in 1975, the Vietnam War was both a crucial arena of the Cold War struggle between Russia and the United States, and a defining struggle of postcolonial nationalism. The Americans believed that they and their South Vietnamese allies were holding back Soviet- and Chinese-sponsored communism. The North Vietnamese, armed by China and Russia and aided by the Viet Cong, the pro-Communist South Vietnamese militia, believed that they were fighting a 'Resistance War', to free their country from colonial rule.

The war for Indochina took more than 3 million lives in Vietnam, and neighbouring Laos and Cambodia, and the lives of over 58,000 American servicemen. And though the US eventually triumphed in the Cold War, the domestic consequences of its involvement and defeat in Indochina – the 'Vietnam Syndrome' – continue to shape American foreign policy.

During the Second World War, President Franklin D. Roosevelt's Atlantic Charter had committed the United States to dismantling the British and French empires in Asia. After 1945, however, this objective became entangled with the strategic need to combat Russian- and Chinese-sponsored communism. In Vietnam, the United States first supported Vietnam's French colonial masters, and then replaced them.

During World War II, the French colonial authorities in Vietnam had aligned themselves with both the pro-German Vichy puppet government in France, and also the brutal Japanese military occupation of Vietnam. In 1941, a communist militia, the Viet Minh, had launched guerrilla wars simultaneously against the French and Japanese administrations. The Viet Minh's leader was Ho Chi Minh (1890-1969), a French-educated magistrate's son whose travels had included periods in the US, Russia, China, the kitchens of various London hotels, and service as a pastry chef on the Newhaven to Dieppe ferry route. The United States adopted Ho and his 'men in black' as allies against French and Japanese fascism. The Viet Minh received military training and medical aid from the Office of Strategic Services, the forerunner of the CIA.

In August 1945, the defeat of the Japanese and the French left a power vacuum in Vietnam. On 2 September, Ho Chi Minh declared the independence of the Democratic Republic of Vietnam, with himself as its leader. When Ho wrote to President Truman and appealed to the Atlantic Charter, he received no reply. No government recognised Ho's state. When the French reoccupied Vietnam in 1946, Ho first allied with them, massacring non-communist nationalists, then turned against them. In 1950, Ho secured recognition for North Vietnam from Stalin, and military support from Mao Tse-Tung. By 1954, when Ho's militia defeated French paratroopers at the Battle of Dien Bien Phu, the French were beaten in Vietnam.



The United States had been sending military 'advisors' to assist the French since 1950. After 1954, the Republican administration of President Eisenhower, following the counsel of Secretary of State John Foster Dulles, cultivated the autocratic and corrupt South Vietnamese leader Ngo Dinh Diem who, as a Catholic from the central highlands of Vietnam, had a narrow base of support in the mostly Buddhist south. Some 900 American advisors now replaced French soldiers as the trainers of the South Vietnamese army, which now faced a pro-communist insurgency in the south. In March 1959, Ho Chi Minh, encouraged by Russia, launched a new offensive, the People's War to unite Vietnam. Diem's government in Hanoi, the CIA warned, was the United States' only defence against the playing out of the 'Domino

Theory', in which the collapse of Vietnam would presage the collapse of Asia to communism.

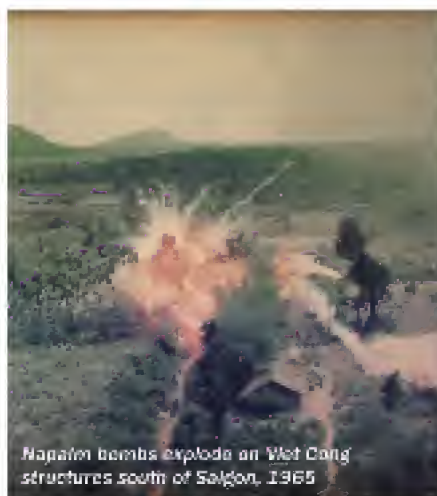
'Burma, Thailand, India, Japan, the Philippines, and obviously Laos and Cambodia are among those whose security would be threatened if the Red Tide of Communism overflowed into Vietnam.' Democratic senator John F Kennedy had warned in 1956. In 1960, Kennedy won the presidency. Determined to 'draw a line in the sand' against Soviet and Chinese influence, Kennedy multiplied the number of 'advisors' from Eisenhower's 900 to over 16,000. But Diem's troops remained weak in the field, and although Kennedy's vice-president Lyndon Johnson had returned from a trip to Vietnam convinced that Diem was 'the Winston Churchill of Asia', Diem faced revolt from his subjects.

On 3 November 1963, Diem was overthrown by his generals with American support. On 22 November 1963, President Kennedy was assassinated. With a series of unpopular and incompetent generals in charge in Hanoi, and the Viet Cong now holding most of the countryside, Kennedy's vice-president Lyndon B Johnson deepened America's commitment to the war. The Democrats, the party of Franklin D Roosevelt, the Atlantic Charter and postcolonial liberation, now led the United States into an imperial folly costing thousands of American lives. The pretext was the Gulf of Tonkin Incident of August 1964.

Johnson's administration alleged that North Vietnamese torpedo boats had fired on two separate days in early August on American warships in the gulf. It is unclear whether



A Douglas Skyraider drops white phosphorus on a Viet Cong position in South Vietnam, 1966



Napalm bombs explode on Viet Cong structures south of Saigon, 1965



Soldiers from the Third US Marines inch towards the summit of Hill 881N during the Battle for Khe Sanh, 1968

- **Birth of the Viet Cong**
In 1960, as John F Kennedy enters the White House, North Vietnamese leader Ho Chi Minh creates the National Liberation Front for South Vietnam: the Viet Cong. **1960**



- **Rolling Thunder and Arc Light**
President Johnson launches two massive three-year bombing campaigns. More than a million tons of bombs are dropped, including chemicals like napalm and Agent Orange. **1965**



Protesters at the march on the Pentagon, 1967

- **Protests in New York City**
Anti-war protesters march through the city and listen to speakers including Martin Luther King and Dr Benjamin Spock. The latter will later be convicted of conspiring to counsel evasion of the draft. **1966**

Timeline

1954

- **The Domino Theory**
"You have a row of dominoes set up," President Eisenhower says in 1954, following the North Vietnamese victory at Dien Bien Phu. "You knock over the first one, and what will happen to the last one is that it will go over very quickly." **1954**

- **The First American advisors**
In 1956, instructors from the US Military Assistance Advisor Group (MAAG) replace French instructors in the training of South Vietnamese troops. **1956**

- **Kennedy is assassinated**
In November 1963, President Kennedy is assassinated. Though he has raised US troop levels from 900 to over 16,000, the South Vietnamese government remains unstable. **1963**

- **Gulf of Tonkin Incident**
President Johnson alleges that US Navy ships have twice been attacked by North Vietnamese torpedo boats in the Gulf of Tonkin. Congress grants him war powers. **1964**

- **The ground war begins**
In March 1965, Johnson dispatches a defensive deployment of 3,500 soldiers under the 9th Marine Expeditionary Brigade. By the end of 1965, there are 200,000 American soldiers in Vietnam. **1965**

- **The anti-war movement begins**
In March 1965, as US involvement mounts, anti-war students and faculty at the University of Michigan at Ann Arbor conduct the first 'teach-in' about the war. **1965**

the North Vietnamese fired at all in the first of these encounters, though it is confirmed that the USS Maddox fired at the boats. It is possible that the second alleged encounter never happened at all; when documents were declassified in 2005, America's National Security Agency admitted as much. Still, Johnson used the Gulf of Tonkin Incident to secure a mandate for war from Congress, and to launch Operations Rolling Thunder and Arc Light, two massive bombing campaigns against North Vietnamese positions and villages.

Though Johnson promised not to commit 'American boys to fighting a war that I think ought to be fought by the boys of Asia to help protect their own land', in March 1965 he sent 3,500 US Marines to Vietnam, to prop up the government in Hanoi. By the end of 1965,

some 200,000 American soldiers were in South Vietnam. With the South Vietnamese forces unable to defeat the Viet Cong insurgency, and the American garrison losing morale, General William Westmoreland proposed a three-stage offensive plan for a ground war, with victory by the end of 1967. Johnson agreed, but did not tell the media that American strategy had now shifted from defensive support of the South Vietnamese government to a village-by-village battle with the Viet Cong and their rural supporters. US pressure secured troops from Australia, New Zealand, South Korea, Thailand and the Philippines. Britain's prime minister Harold Wilson refused to assist. 'Not even a battalion of Black Watch!' Johnson complained.

American public opinion had strongly supported Johnson's insertion of ground forces

in March 1965. This support declined with the rapid increase in the scale of the American presence, the indiscriminate casualties caused by US bombers, and the first reports of American casualties. Three factors forced Vietnam to the front of domestic awareness. As the US armed forces were mostly conscripts, almost all American families were affected by 'The Draft'. Unlike the Korean War, the Vietnam War was an immediate, real-time experience for American civilians, because each episode was televised in colour on the news. Furthermore, powerful currents of revolt against authority, some of them more sympathetic to Ho Chi Minh's communist dictatorship than American-style capitalist democracy, were brewing on US university campuses.

On 30 January 1968, the North Vietnamese Army and the Viet Cong broke the traditional Set (New Year) ceasefire and launched the largest and most important battle of the Vietnam War. In the Tet Offensive, more than 85,000 troops attacked some 100 cities. Only weeks earlier, General Westmoreland had declared that American involvement was reaching the point 'where the end comes into view'. Now, Viet Cong insurgents were besieging Westmoreland's headquarters and the US embassy in Hanoi. In one week of fighting, 543 American soldiers were killed and over 2,500 wounded.

The Tet Offensive revealed to many Americans the 'credibility gap' between the pronouncements of Johnson and Westmoreland and the failure of the strategy in Vietnam. The US beat back the Tet Offensive on the ground, but Johnson's administration never recovered from this loss of public trust. In March 1968, Westmoreland was kicked upstairs, and his request for an additional 200,000 troops denied. In May 1968, Johnson, while continuing the indiscriminate area bombing of North Vietnam, entered peace talks with the North Vietnamese at Paris.

By the end of 1968, a Democratic administration had sent more than 30,000 US soldiers to their deaths in Vietnam.



Crewmen from the USS Durham take aboard Vietnamese refugees in April 1975



● **The Tet Offensive**
A wave of surprise attacks catch the US forces off their guard. The Americans turn back the North Vietnamese assault, but the US public loses confidence in the war.
1968



A B-52 Stratofortress dropping bombs on Vietnam

● **Operation Breakfast**
Elected to extricate the US from Vietnam, Richard Nixon orders Operation Breakfast: the secret bombing of neutral Cambodia. The bombing continues for the next 14 months.
1969

● **'Peace is at hand'**
Henry Kissinger announces that 'Peace is at hand' in the Paris negotiations. But South Vietnamese president Thiệu opposes the treaty. To secure the deal, Nixon steps up the bombing.
1972



Kissinger, Nelson Rockefeller and President Ford discuss the evacuation of Saigon

● **The Fall of Saigon**
As the North Vietnamese close in on Saigon, thousands of South Vietnamese break into the US Embassy. The US evacuates its own personnel.
1975

● **Operation Cedar Falls**
In a major operation near Saigon, 16,000 US and 14,000 South Vietnamese troops discover a network of underground tunnels that serves as a Viet Cong command centre.
1967

● **Dr King condemns the war**
Dr Martin Luther King, the leader of the American Civil Rights Movement, calls his government 'the greatest purveyor of violence in the world'. Shortly afterwards, he endorses draft evasion.
1967

● **The My Lai Massacre**
A company of Marines on a 'search and destroy' mission massacre as many as 500 Vietnamese civilians in the village of My Lai. The news causes a scandal in the US.
1968

● **Johnson retires**
Realising that Vietnam has ruined him, Johnson announces that he will not contest the 1968 election. In the following months, Martin Luther King and would-be presidential candidate Bobby Kennedy are assassinated.
1968

● **Kent State**
When anti-war protestors at Kent State University, Ohio throw rocks at the National Guard, the guardsmen kill four and wound eight. Nixon criticises both the protestors and the guardsmen.
1970

● **Ceasefire**
On 28 January 1973, the Paris treaty signed by Kissinger and North Vietnam's Le Duc Tho takes effect. Nixon promises 'peace with honour in Vietnam and Southeast Asia'.
1973

● **Return to war**
As Nixon falls from office in the Watergate scandal, the South Vietnamese return to war. Kissinger and Tho receive the Nobel Peace Prize, but Tho, claiming that there is no peace, refuses to accept.
1974

1975



The Tet Offensive

When the North Vietnamese launched the Tet Offensive in the early hours of 31 January 1968, they hoped to provoke a national uprising against the US, and even to seize key cities in South Vietnam. By the next morning, more than 80,000 North Vietnamese troops were attacking more than a hundred towns and cities in South Vietnam, including the southern capital of Saigon.

American intelligence had detected signs of strategic planning and troop movements in the months beforehand, but the Americans and their South Vietnamese allies were taken by surprise. The North Vietnamese troops and the Viet Cong seized the former capital city of Huế, besieged the US Embassy at Saigon, and even attacked General Westmoreland's headquarters. The Americans and their allies recovered quickly, and inflicted a severe defeat on the North Vietnamese. Yet the Tet Offensive convinced a majority of the US public that the war could not be won.

The number of Americans who felt that sending troops to Vietnam had been a mistake had risen from 25% in 1965 to 45% by late 1967. News footage of the Tet Offensive disproved the Johnson administration's claim to be winning the war, and General Westmoreland's recent assertion that victory was in sight. Not since the Japanese attack on Pearl Harbor had the United States suffered so significant a failure of military intelligence. Regaining ground lost to the Tet Offensive cost more than a thousand American lives. The battle for Huế left most of the city in ruins.

By the spring of 1968, Johnson's approval rating had collapsed, and a majority of Americans believed that direct American involvement in Vietnam had been a strategic error. "To say that we are mired in stalemate seems the only realistic, yet unsatisfactory conclusion," argued Walter Cronkite, the influential CBS news anchor in a famous broadcast.

Another defining image from the Tet Offensive won a Pulitzer Prize in 1969. Edward T Adams's photograph of South Vietnamese police chief Nguyễn Ngọc Loan publicly executing a Viet Cong officer, Nguyễn Văn Lém, who had been captured in civilian clothing, has been called 'the picture that lost the war'.



Black smoke enshrouds Saigon and fire trucks rush to the scene during attacks by the Viet Cong in 1968



An American helicopter spraying defoliant over the Mekong Delta, 1969

and discredited the trustworthiness of the government. Johnson's refusal to send more troops amounted to an admission that, while the US could not lose the war if it was prepared to sacrifice its sons, neither could it win it. Anti-war protests moved from the campus to the streets. The media, which had been largely complicit with Kennedy and Johnson's slide into Vietnam, now turned on the government. Johnson announced he would not seek re-election. The 1968 Democratic Party convention in Chicago general election saw fighting between more than 10,000 anti-war protesters and the police.

The Republican nominee Richard Nixon won the 1968 election with promises to restore order at home, and extract American troops from Vietnam. Under the strategy of 'Vietnamization', American forces were withdrawn in stages, and the South Vietnamese army expected to take up the defence. At the same time, Nixon and his National Security Council adviser Henry Kissinger tried to secure the global framework for withdrawal by seeking détente with Russia and rapprochement with China. These two initiatives would prove crucial in defusing the Cold War but, like the Paris negotiations, they would take time to accomplish.

By early 1971, Nixon had reduced American troop numbers in Vietnam from Johnson's legacy of 549,500 by almost half. The number of American casualties in 1970 was half that of 1969, too. The strategy of Vietnamization did not, however, placate the anti-war movement. In 1969, the American public was appalled by the revelation of war crimes committed by US

troops: the murder of as many as 500 unarmed Vietnamese civilians by American soldiers at the village of My Lai in 1968, and the murder by Special Forces of a Viet Cong informant in June 1969. In 1970, when North Vietnam invaded Cambodia in support of the communist Khmer Rouge, Nixon committed American bombers to another campaign of carpet bombing. Nixon insisted that this intervention was necessary in order to secure the American withdrawal from Vietnam.

In 1971, the leaking of the 'Pentagon Papers', a secret history of the Vietnam fiasco commissioned by the Department of Defense, showed how successive administrations – both Democratic and Republican – had deceived the American public over Vietnam. The failure in early 1971 of a South Vietnamese attempt to cut the Ho Chi Minh Trail, the Viet Cong's supply route from neighbouring Laos convinced the American public that Vietnamization was failing, and that the United States should leave Vietnam at all costs.

"In our opinion," Vietnam veteran and future presidential candidate John Kerry testified to a Senate committee in April 1971, "and from our experience, there is nothing in South Vietnam, nothing which could happen that could realistically threaten the United States of America." Nixon, Kerry said, was prolonging the war unnecessarily. It was the "height of criminal hypocrisy" to "justify the loss of one American life in Vietnam, Cambodia or Laos" to "the preservation of freedom".

Against the background of Nixon's campaign for re-election, the Paris negotiations produced a peace treaty in October 1972. When the



In the Situation Room of the White House, President Johnson (second from left) studies a model of Khe Sanh, where US Marines are besieged by the Viet Cong in February 1968

South Vietnamese leader Nguyen Van Thieu demanded new terms. Nixon ordered further heavy bombing of North Vietnam, and threatened to abandon Thieu. This forced the parties back to the table in Paris, but at the cost of civilian lives in North Vietnam. The treaty was signed on 27 January 1973. The last US ground troops left in March 1973.

Without American air support, the South Vietnamese army could not hold off the communist forces. In 1974, after Nixon had resigned in disgrace after the Watergate scandal, US aid to the South shrank under President Ford. In the spring of 1975, the North Vietnamese surrounded Saigon. Television cameras reported the panic as South Vietnamese officials and civilians scrambled to escape. On 30 April 1975, US Marines evacuated the Saigon embassy by helicopter, leaving thousands of their Vietnamese employees and their families to their fate.

The suffering of the Vietnamese and their neighbours was not over. The communists sent 300,000 South Vietnamese to 're-education' camps, where they were tortured, starved and forced to do hard labour. As many as 400,000 Vietnamese drowned attempting to escape communist Vietnam. The US's withdrawal also led to the ascent to power of the Khmer Rouge in Cambodia, and the genocide that ensued.

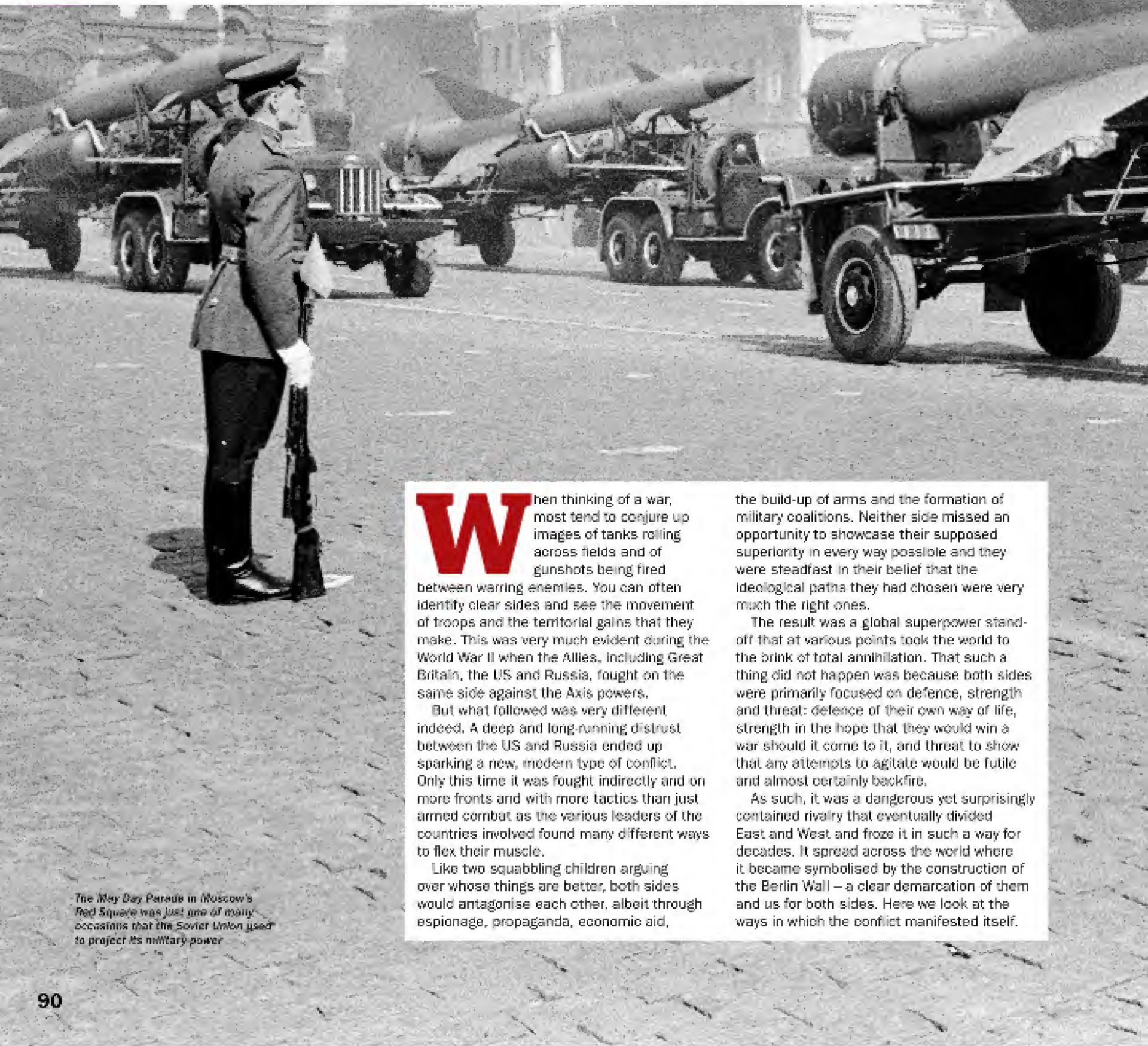


Marine Private D.A. Crain of New Brighton, Pennsylvania is treated for wounds during Operation Hue City, 1968



HOW THE COLD WAR WAS FOUGHT

Forget open warfare and traditional combat, the Cold War was underhand, manipulative and competitive – yet just as dangerous as any major conflict



When thinking of a war, most tend to conjure up images of tanks rolling across fields and of gunshots being fired between warring enemies. You can often identify clear sides and see the movement of troops and the territorial gains that they make. This was very much evident during the World War II when the Allies, including Great Britain, the US and Russia, fought on the same side against the Axis powers.

But what followed was very different indeed. A deep and long-running distrust between the US and Russia ended up sparking a new, modern type of conflict. Only this time it was fought indirectly and on more fronts and with more tactics than just armed combat as the various leaders of the countries involved found many different ways to flex their muscle.

Like two squabbling children arguing over whose things are better, both sides would antagonise each other, albeit through espionage, propaganda, economic aid,

the build-up of arms and the formation of military coalitions. Neither side missed an opportunity to showcase their supposed superiority in every way possible and they were steadfast in their belief that the ideological paths they had chosen were very much the right ones.

The result was a global superpower stand-off that at various points took the world to the brink of total annihilation. That such a thing did not happen was because both sides were primarily focused on defence, strength and threat: defence of their own way of life, strength in the hope that they would win a war should it come to it, and threat to show that any attempts to agitate would be futile and almost certainly backfire.

As such, it was a dangerous yet surprisingly contained rivalry that eventually divided East and West and froze it in such a way for decades. It spread across the world where it became symbolised by the construction of the Berlin Wall – a clear demarcation of them and us for both sides. Here we look at the ways in which the conflict manifested itself.

The May Day Parade in Moscow's Red Square was just one of many occasions that the Soviet Union used to project its military power



"THE RESULT WAS A GLOBAL SUPERPOWER STAND-OFF THAT AT VARIOUS POINTS TOOK THE WORLD TO THE BRINK OF TOTAL ANNIHILATION"



PEDDLING PROPAGANDA TO THE MASSES

BOTH THE US AND USSR USED A WIDE VARIETY OF PROPAGANDA TECHNIQUES TO INFILTRATE THE MINDS OF CITIZENS EVERYWHERE TO PROTECT THEIR IDEOLOGIES

Since the battle between the US and USSR was built upon differing ideologies, both sides were keen to present the other in the worst possible light. They pushed their relevant agendas in a wide number of ways and looked to make themselves appear stronger and victorious, using propaganda as the key weapon in their attempts to gain the upper hand.

In all cases, the messages were clear. The Americans claimed the Soviets were ignorant of human rights and were following an evil social system that put citizens at the heel of tyrant communist dictators. The Soviets pushed an omnipresent anti-capitalist ideology that criticised the West as cash-obsessed and inferior, where the workers were enslaved and great injustice was prevalent.

Huge amounts of money were poured into creating and promoting the exaggerated statements that were being pumped out daily. The CIA estimated that the Soviet propaganda budget was as high as \$4 billion in the 1980s but the Americans also spent many millions as they sought to influence the masses with anti-communist sentiment.

It appeared especially important for propaganda to pervade popular culture. Comics were published by the US government to drive its message home: Korea My Home, for instance, stressed the reasons why the US troops were needed in the battle against the evil ambitions of the communist Korean People's Army. There was also an attempt to revive Captain America, a superhero so successful in the propaganda battle of World War II.

The Americans used film, music, literature and television too. An early example, Make Mine Freedom, was a blatant Cold War-era propaganda animation that laid on the humour to diminish communism and raise the status of capitalism. But then barely a radio or television series could pass by listeners and viewers in the 1950s without the drip-feed of how well the USA and its nuclear families were performing together as a society. Even James Bond was a weapon in this war, Ian Fleming having created the character as a "Commie basher".

Not that higher culture was immune from the propagandists. The CIA was widely yet secretly supportive of American Abstract Expressionist painters, even those who were ex-communists. It was desperate to portray the cultural power of the US and show how creative and intellectually free its citizens were against the straightjacketed Soviets.

This extended to distributing anti-communist literature in businesses, schools and public places, and funding persuasive radio stations such as Voice of America, which was broadcast behind the Iron Curtain from 1947 as a way of countering Soviet propaganda.

It was deemed necessary because the Russians had control of the media including stations such as Radio Moscow, television channels and cinema (upon which the Central

A mocking Soviet poster featuring the Statue of Liberty, declaring "the shameful brand of American democracy"



United Film Studios and the Committee on Cinema Affairs exerted a tight grip). It was illegal to disagree with USSR doctrine and the US feared mass brainwashing since Soviet propaganda was as much about controlling its citizens and ensuring other communists states remained faithful as it was about beating the Americans.

Those who refused to toe the line were arrested, tortured, imprisoned and executed. Meanwhile, posters would promote a happy way of life using strong Russian iconography and simple, easily digestible messages that didn't even need a command of the language to understand. Loyalty – for both sides – was crucial.

INFILTRATING ENEMY INSTITUTIONS

ESPIONAGE WAS RIFE AS THE COMMUNISTS AND CAPITALISTS TRIED TO GATHER AS MUCH INTELLIGENCE ON THE OPPOSITION AS THEY POSSIBLY COULD

Two government organisations stand out most starkly during the Cold War: the American CIA and the Soviet KGB. With their network of spies across the world and a great thirst for gathering intelligence, they each hoped to discover what the other side was up to and get a grip on their military prowess. As such, knowledge was indeed power and there were numerous flashpoints along the way.

The CIA was born on 18 September 1947 following the passing of the National Security Act that year. It succeeded the Office of Strategic Services that had been formed by President Franklin D Roosevelt after Japan's surprise attack on Pearl Harbor in 1941. When World War II ended, Roosevelt's successor, Harry Truman, felt the US needed a co-ordinated intelligence system that could match those of the British Empire and Russia.

But as well as gathering intelligence, the CIA was given the power to perform "other functions and duties related to intelligence affecting the national security." Using a huge cash reserve that it had partly built up by taking a small percentage of money from the Marshall Plan, it paid émigrés to deliver intelligence on Soviet plans and it funded anti-communist labour, student and intellectual organisations, each of which were hidden behind fronts so as not give away the identity of their backer. They were able to feed information back on potential Russian plans.

Yet the Russians were astute and recruiting just as heavily, and it not only led to a proliferation of spies but double agents too. The Soviets were the first to send spies, without agency cover, to operate in the US and on the soil of its NATO allies. One such case involved Gordon

Lonsdale, who masterminded the Portland Spy Ring in the UK in the late 1950s. He was unveiled as the Soviet intelligence officer Konon Molody while Peter Kroger, of the same ring, was actually Morris Cohen, an American citizen who was carrying out espionage for the Soviets with his wife, Helen Kroger, aka Leontine Cohen.

Arrested along with British-born Harry Houghton – a spy for the People's Republic of Poland and the USSR – and his lover Ethel Gee, they had been gathering intelligence on UK operations and yet they were typical of spies: able to blend into the background. But they were merely among many others handing information to the Soviets.

The Cambridge Five worked their way into the British Establishment and atomic spies were situated in the US, Britain and Canada, illicitly dishing out information about the production of nuclear weapons and designs to the USSR. It worked both ways, though – the CIA recruited thousands of foreign agents sympathetic to the West to send information back and they also broadcast anti-communist sentiments on Radio Free Europe from 1949.

There were some farcical situations, though. The CIA supported a Polish resistance group called the Freedom and Independence movement but had no idea that the Soviets had broken it up in 1947 and yet continued to allow the Americans to think it still existed. The CIA's spies were also convinced North Korea's Kim Il-sung would not attack the south – which he did with Russian and Chinese backing. It also had to admit that it was operating surveillance missions over the USSR in 1960 when a Soviet surface-to-air missile shot down a U-2 spy plane.

U-2 reconnaissance planes would fly over Soviet positions in a bid to spy on the US's rivals



"THE SOVIETS WERE THE FIRST TO SEND SPIES, WITHOUT AGENCY COVER, TO OPERATE IN THE US AND ITS NATO ALLIES"

STOCKPILING NUCLEAR WEAPONS

BOTH SIDES LOOKED TO MANUFACTURE AND STOCKPILE NUCLEAR WEAPONS, CAUSING THE WORLD TO HOLD ITS BREATH

The starting pistol for the nuclear arms race was fired by the US during World War II when it carried out its first successful nuclear weapon test in July 1945 and followed it up a month later with the dropping of two atomic bombs on the Japanese cities Hiroshima and Nagasaki. Such was the devastating effect of the weapons that the newly-formed United Nations held discussions about their future use. But six months later, the US investigated the effect of nuclear weapons on warships while the Soviets got on with creating their own atomic bombs.

The Soviets exploded their first nuclear weapon on 29 August 1949. But it was the development of the hydrogen bomb that saw the race heat up: the US detonated its first in 1952 followed by the Soviets in 1953. Further tests were carried out throughout the decade.

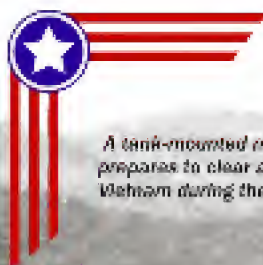
Both sides looked to amass firepower. The Russians went for quantity while the US sought better quality. Intercontinental ballistic missiles were seen as essential in being able to launch long-range strikes, and the launch of the Russian Sputnik satellite raised fears that the Soviets could reach across the world.

The arms race was as much about deterrent though: Mutually Assured Destruction ensured there was no doubt that an attack would lead to a wipeout of the world. Even so, Russia stepped up its efforts in the 1960s while the US was scaling back. By then, there had been some heart-in-mouth moments, not least the Cuban Missile Crisis of 1962.

Detente in the 1970s saw agreements to reduce weapons spending, but the USA stepped up the race in the 1980s with talk of the so-called Star Wars programme that would create space and Earth-based laser systems. A nervous Russia began to pull back, and by the end of the decade with the fall of the USSR, the race was over.



Viktor Lukyanov, chief of the Kapustin Yar Nuclear Museum, shows a Soviet intercontinental warhead used after 1956



A tank-mounted mine roller prepares to clear a highway in Vietnam during the war



FIGHTING IN PROXY WARS

THE COLD WAR RIVALS BATTLED BEHIND THE COVER OF OTHER COUNTRIES' CONFLICTS

The USSR and the USA did not wage a direct military war against each other during the period of the Cold War since there was a general worry that going head-to-head would lead to a nuclear holocaust. Instead, the Soviets and the Americans armed other countries or insurgent forces, backing the side that best served their interests.

There was a huge number of proxy wars, with the first being the Korean War that began on 25 June 1950. As 75,000 soldiers from the Soviet-backed North crossed into the US-backed South, it sparked a war between communism and capitalism, with the Americans keen to show strength against what it believed to be the greatest threat to the world.

Arguably the best known proxy war, though, was the one fought in Vietnam for 20 bloody years. The North Vietnamese army was supported by the Soviet Union and China and so was firmly communist, with the South Vietnamese army supported by an anti-communist alliance that included the US and the Philippines. During this period, the Americans also had to contend with the guerrilla organisation the Viet Cong.

Afghanistan was another major front in the Cold War. The Mujahideen, backed by the US, fought against the Soviet Army and the allied Afghan forces. Just as with Vietnam, it preoccupied the USSR for a large number of years – ten in this case – but with dozens more proxy wars being fought in the four corners of the Earth, such conflicts were almost a way of life.

APPLYING ECONOMIC PRESSURE

ECONOMIC HEALTH WAS HIGHLY PRIZED AND IT WAS USED TO CONTROL AND DOMINATE ALLIES AND RIVALS

Over the course of the Cold War, the US and the USSR were both in a position to furnish their allies with military and economic aid, and this allowed them to exert pressure and influence on what had become two halves of the world. But there were occasions when the sides would exert economic pressure on each other as well: the wars in Vietnam and Afghanistan, for instance, proved costly, and the latter was so financially crippling for the Soviets that it is regarded as one of the main reasons for the eventual collapse of the USSR.

In 1982, however, there was a real – and successful – attempt to damage the Soviet industry by the powers of the West. The CIA had come to possess what was known as the Farewell dossier, which was a list of Soviet agents tasked with stealing and cloning American software in order to build chemical plants, spacecrafts, weapons systems and more. The agency decided it would be a good idea to feed intelligence officers software that contained deliberate flaws.

It placed a logic bomb within a control system that the Russians used for the Trans-Siberian Pipeline. Since

it was coded to reset the pump speeds and valve settings to produce high pressures, the flawed software sparked huge, costly explosions that ended up destabilising the Russian economy by disrupting the money that it could earn from the gas supply.

It's little wonder, then, that the full details of the operation did not emerge until 2004 – had it been known at the time, this act of economic sabotage could have easily escalated into something very severe indeed.

A 50 roubles public bond banknote issued in Russia in 1982 – the year the economy took a nosedive



DEVELOPING CUTTING-EDGE TECHNOLOGY

MUCH TIME, MONEY AND EFFORT WAS PUT INTO EDUCATION TO CREATE A WORKFORCE CAPABLE OF CREATING CUTTING-EDGE TECHNOLOGY

Aside from the amassing of arms, there were bragging rights associated with the advancement of technology in other areas, including in the kitchen. As well as engaging in a mammoth house-building programme in the 1960s, Soviet leader Nikita Khrushchev sought to fill the small homes with time-saving, eye-catching devices. He had been ruffled by Vice President Richard Nixon in 1959 during the opening of the American National Exhibition at Sokolniki Park in Moscow, where the US exhibitors had created a large house filled with impressive devices that made life easier for residents. The Americans claimed anyone in the US could afford to buy such a home.

So hoping to mimic the style of a 1950s kitchen with their appliances and bold colours, and raise the standard of living of Soviet citizens – which were rather woeful in comparison – the communists began to convert military factories into toy and domestic

appliance manufacturers, creating Western-style radios and modern-looking vacuum cleaners and washing machines. At the same time, a lot of money was put into education. There was much state-funded research into science and technology, and while this was very much about enhancing the quality of weapons research in the US and the USSR (the US passed the National Defense Education Act in 1958 to provide millions in educational funding), it had an impact on biomedicine, computer science, ecology, meteorology and even agriculture. Indeed, the Cold War era was a period of technical innovation that was hallmarked to a large extent in the space race, during which the United States and the Soviet Union fought hard to develop technology that would allow them to achieve many space firsts, thereby showing off the benefits of their respective ideologies in the advancement of the human race.



Above: Richard Nixon and Nikita Khrushchev clash at the American National Exhibition in what has become known as the Kitchen Debate

ESTABLISHING SPORTING SUPREMACY

THE RIVALS SAW SPORT AS A GOOD TEST OF HOW WELL THEIR NATIONS WERE PERFORMING

Sport proved to be a way in which countries could show the physical strength and health of their populations, and it figured highly in the point-scoring era of the Cold War. In 1966, there were rumours that top athletes competing in the European Track and Field Championships in Hungary were men disguised as women. In 1972, the Soviet Union ended up facing the United States in the basketball final of the Munich Olympics – and even though the US were strong

favourites to win, they ended up losing by just one point, with a score of 51-50.

That's only half the story, though. The Americans believed they had won 50-49 with three seconds left. But with a second to go, Renato Jones, the co-founder of the international basketball federation FIBA (and who had been visited ten weeks earlier by Soviet chief of the basketball office Nikolai Beshkarev) added another two seconds to the clock. It gave the Soviets two chances to

score, which they took. The Americans refused to accept their silver medals and it caused a furor that continues to rankle to this day.

In 1980, the United States had a chance to take revenge when it met the Soviets in a Winter Olympics hockey game and beat them 4-3 against all the odds and went on to achieve gold. It then compounded the USSR's misery by leading a boycott of the Moscow Summer Olympics and pressured dozens of others to do the same. This was in response to the Soviet's refusal to withdraw troops from Afghanistan. The Soviet Union boycotted the 1984 Olympics in Los Angeles in return.




Soviet basketball players beat the US in the Olympic final of 1972 with a score of 51-50



**"THIS WAR WAS SO
DEVASTATING TO THE IRAQI
MILITARY AND STATE, IT
BECAME ETCHED INTO THE
IRAQI CONSCIENCE AS 'THE
MOTHER OF BATTLES'"**

IN THE EYE OF DESERT STORM

Operation Desert Storm hit Iraq like a force of nature and heralded its decline from a regional power to a failed state, yet the story from inside Saddam's regime is rarely told



As has been the case since time immemorial, history is almost always written by the victors. The United States of America's rise to global power and dominance is a popular story, one told countless times over. However, what's rarely seen is an Iraqi perspective of the Gulf War.

While most observers focus on Saddam's expansionist agenda, they tend to neglect the Iraqi military, which is often a silent witness, barely considered in most histories of the war. Since the collapse of Saddam's Ba'athist regime after the US-led invasion in 2003, the archives of Saddam's secretive government have been laid bare for historians to pore over. It is now time for this iconic war to be revisited, and for the record to be re-examined. After all, this war was so devastating to the Iraqi military and state, it became etched into the Iraqi conscience as 'The Mother of Battles'.

After the Iran-Iraq War between 1980 and 1988, the Iraqi military was regionally viewed in much the same light as the Prussian military was among the Europeans after Moltke the Elder's successful campaigns in 1866-71. The Iraqi Army had developed a reputation for endurance, steadfastness and professionalism after its operations with Iran towards the end of the war that allowed Iraq to emerge victorious, if only just. At least compared to other Arab armies, who suffered a slew of defeats at the hands of Israel, the Iraqi Army came to be feared and respected.

This reputation was soon to be tested, this time against the military might of the Western world led by the only global superpower – the United States of America.

Kuwait – Iraq's 19th province

Since Iraq gained at least nominal independence from British colonial rule, it had made territorial claims over the country of Kuwait, believing it to be an integral part of its southern Basra region. After a bloody struggle with the Ayatollahs, Saddam's coffers were empty and the state was saddled with immense debts of \$30 billion to neighbouring Arab Gulf countries alone. With a tanking economy and decreasing oil revenue, resulting from an increase in his Arab neighbours' oil production that deflated prices, Saddam was under increasing pressure to act. When he failed to get his Arab creditors to relieve Iraq's debt burden through diplomacy, and with increasing whispers in Baghdad of a potential military coup against him, Saddam needed a show of strength and a distraction for his army all at once. He needed another war.

Saddam felt like he had been betrayed by his Arab brothers. In his eyes, Iraqi blood had been spilt for eight years in order to stop the fundamentalist Islamic Revolution of Ayatollah Khomeini from expanding into the rest of the Arab world. Rather than acknowledging Iraq's sacrifice, Saddam and his aides believed that their Arab neighbours were trying to weaken Iraq by keeping it indebted and with a weak economy. As Iraq's smallest neighbour, and as it shared the enormous Rumaila oil field, Kuwait was the obvious target for Iraqi ire, and would serve as a suitable demonstration of force that would



browbeat the other Arabs into acquiescence. Iraq began to mobilise on 15 July 1990 and deployed troops on the Iraqi-Kuwaiti border as a last-ditch effort to intimidate the Kuwaitis into capitulating. When this failed, the invasion of Kuwait was ordered, and plans were drawn up.

Not much time was allotted for the Iraqi officers to plan their invasion. Primary responsibility for the invasion of Kuwait lay with the Republican Guard, commanded by Lieutenant General Ayad Futayyih al Rawi. His operational plan was as follows:

The Republican Guard's 3rd Special Forces Brigade were to make an airborne landing in Kuwait City, the Kuwaiti capital, to capture the Emir of Kuwait's palace and other government buildings. They would be supported by forces from the Hammurabi Armoured Division, who would be thrusting down the main road connecting Iraq and Kuwait. Meanwhile, forces from the Nebuchadnezzar Infantry Division were tasked with establishing control over Kuwait City once the Special Forces Brigade had established control over primary targets.

A further Republican Guard infantry brigade was to penetrate Kuwait from the Iraqi town of Umm Qasr and move to gain control over the Kuwaiti island of Bubiyan, thus establishing Iraqi control north of Kuwait City.

The Republican Guard Medina Armoured Division was to drive on Ahmadi to secure the south of Kuwait City and cut it off from the south of Kuwait. This movement was to be supported by the Adnan Infantry Division, which would secure Kuwait's southern borders with Saudi Arabia.

After the war with Iran, Iraq had a fleet of 750 combat aircraft, which, in conjunction with the relatively small land mass of Kuwait placing airfields within easy range of Iraqi ground forces, gave them a high expectation of achieving and

Soldiers of the Iraqi Army line up during the Iran-Iraq war of 1980-88



Steve Press/RLX

SADDAM'S REPUBLICAN GUARD

THE IRAQI REPUBLICAN GUARD WAS THE CREAM OF THE IRAQI MILITARY CROP, USED TO DETER ENEMIES BOTH AT HOME AND ABROAD

The Republican Guard was the best of Iraq's ground forces. Originally formed in 1969 as a single brigade based in Baghdad, the Republican Guard's main role before the Iran-Iraq War was to prevent the Regular Army from making any coup attempts or overthrowing the government. Modern Iraqi history is replete with examples of bloody putsches bringing new leaders and ideologies

Iraqi officers plan their next moves as Operation Desert Storm closes in on them



to power, and so the Republican Guard was formed as a Praetorian force to act as a deterrent against military officers who had ambitions above their station.

During the desperation of the Iran-Iraq War, the Republican Guard was expanded into eight divisions, given the best military equipment that Iraq could afford and granted privileges beyond other units. This made them into

NUMBERS

Eight divisions, approx 200,000 men – two armoured, one mechanised, four infantry and one special forces.

ARMOUR

Made use of BMP Armoured Personnel Carriers, T-72 Main Battle Tanks (including some Lions of Babylon, a T-72 variant), and 155mm self-propelled howitzers.

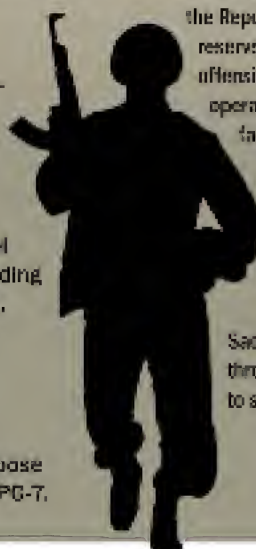
WEAPONS

Infantry weapons include AK-47, RPK, Light Machine Guns, PKT General-Purpose Machine Guns, Makarov pistols and RPG-7.

Below: An more-modern Iraqi T-72 pictured here during a firing test in 2008



Iraq's premier fighting force, answerable only to Saddam himself. The best recruits and officers were given over to the Republican Guard. They were used as a strategic reserve to shore up weaker Iraqi units as well as an offensive force deployed to deal with the hardest operational challenges the Iraqi military had to face. They were responsible for retaking the Faw Peninsula from occupying Iranian forces near the end of the Iran-Iraq War, as well as contributing decisively to operations that led to the defeat and withdrawal of the Iranian military, which subsequently ended the war. Due to their proficiency and effectiveness, Saddam came to rely upon them more and more throughout his military adventures, and used them to spearhead the invasion of Kuwait in 1990.



maintaining complete control of the skies. Such was their confidence that orders were issued to Iraqi commanders specifically instructing them to avoid destroying the Kuwaiti air force and navy, presumably so that Iraq could seize this equipment for itself.

The Kuwaiti Army was held in similarly low esteem, as a total of six brigades (one mechanised, two armoured, two commando, and a single Royal Guard brigade) were all the forces that Kuwait had to defend an area of less than 7,000 square miles against a vastly superior Iraqi force of 100,000. The Iraqis were both qualitatively and quantitatively superior to the Kuwaitis, outnumbering them by an enormous nine to one.

The invasion began in the early hours of 2 August 1990 in a two-pronged attack. Iraqi Special Forces were deployed via helicopter in Kuwait City as planned, while the Hammurabi Division drove south down Route 80 (soon to become infamous as the 'Highway of Death') directly towards Kuwait City. The Medina Armoured Division's thrust came down a road slightly farther to the west, before making a hook to the east to take up the positions outlined in the Iraqi campaign plan. It was at this moment that one of the rare few clashes with Kuwaiti forces began, but it proved to be a lacklustre affair.

At approximately 6.45am, the Kuwaiti 35th Armoured Brigade quite literally ran afoul of elements of the Iraqi 17th Armoured Brigade, commanded by then Brigadier General Ra'ad al-Hamdani. After their British-made Chieftain tanks received a volley of Iraqi T-72 fire into their flanks, the Kuwaiti brigade melted away, returning inaccurate fire that managed to take out just one Iraqi tank in this initial action.

In personal memoirs detailing his part in the conquest of Kuwait, al-Hamdani reported that the Iraqi forces were ordered to use non-lethal rounds when firing upon Kuwaiti armour in order to minimise casualties and to scare the defending forces into surrender rather than be forced to utterly destroy them. Al-Hamdani suggests that this is because many military commanders still saw the Kuwaitis as their Arab brothers, and, considering the overwhelming number of Iraqis, saw no need to deploy disproportionate force for what was a foregone conclusion of a total Iraqi victory.

This conclusion came to pass less than 12 hours after the operation started. Apart from a small engagement with a brigade of Kuwaiti Royal Guardsmen at the Emir of Kuwait's palace that led to the death of Fahad Al Sabah, the emir's younger brother, Iraq was in near total control. Over the next few days, Iraqi forces consolidated their control over Kuwait and mopped up any remaining pockets of resistance before Saddam formally announced that Kuwait had 'joined' Iraq as its 19th province. The Kuwaiti royal family had fled almost as soon as Iraqi forces had crossed

"THE IRAQIS WERE BOTH QUALITATIVELY AND QUANTITATIVELY SUPERIOR TO THE KUWAITIS, OUTNUMBERING THEM BY AN ENORMOUS NINE TO ONE"

THE ORIGINAL COALITION OF THE WILLING

THE USA WASN'T ALONE IN ITS OPERATION AGAINST IRAQ'S OCCUPATION



VS



THE IRAQI ARMY

THE IRAQI ARMY FACED THE IMPOSSIBLE TASK OF FIGHTING AGAINST A COALITION OF 1,000,000 MEN, WITH ARMOUR AND COMBAT AIRCRAFT NUMBERING IN THE THOUSANDS USING ONLY THE FOLLOWING:





the border, their military units were either captured or had also fled to Saudi Arabia, and Kuwait no longer existed as a sovereign state.

Although the Iraqi forces had easily conquered Kuwait, it's highly likely they might not have celebrated their victory so eagerly had they known what kind of storm was brewing on the horizon.

The gathering storm

Immediately after Iraq invaded Kuwait, the international community, led by the United States, condemned the invasion and a series of United Nations Security Council resolutions were passed, demanding a complete Iraqi withdrawal and placing Iraq under sanctions.

Perhaps attempting to see if he could make the world blink first, Saddam refused to withdraw Iraqi forces from Kuwait, leading to a Western and allied Arab military buildup in the region. Strategically, the United States feared what would happen if Iraq launched an invasion of oil-rich Saudi Arabia, thus placing most of the world's oil supply directly under Saddam's control, or at the very least threatened by him. However, this was not in Saddam's mind at all. Iraqi sources show that, at a very basic level, all Saddam wanted was to restore the Iraqi economy and he hoped to use Kuwait as a

bargaining chip to obtain concessions from his neighbours and the international community. This certainly explains why the Iraqi Army sat still and watched as an international force nearing 1,000,000 soldiers and support personnel slowly amassed over a period of

almost six months as a part of what was named Operation Desert Shield.

The Iraqi Army was forbidden from pre-emptively striking at the build up of the American-led Coalition Forces, and was instead left to ponder how best to weather the storm

With the Iraqi air force destroyed in the early stages of the war, unstoppable strikes from the air halted ground troops



THE LION OF BABYLON TANK

THE 'LION OF BABYLON' WAS AN IRAQI-MODIFIED SOVIET T-72 TANK THAT SOUNDED MORE FEARSOME THAN IT PROVED ON THE FIELD OF BATTLE

MAIN ARMAMENT

The tank's main punch came from its 125mm main gun, which could fire armour-piercing sabot rounds, HEAT and HEF ammunition.

SECONDARY ARMAMENTS

The Iraqis tended to use tanks as self-propelled artillery or in support of infantry operations, and so a 7.62mm PKT coaxial machine gun was the secondary weapon of choice.

ARMOUR

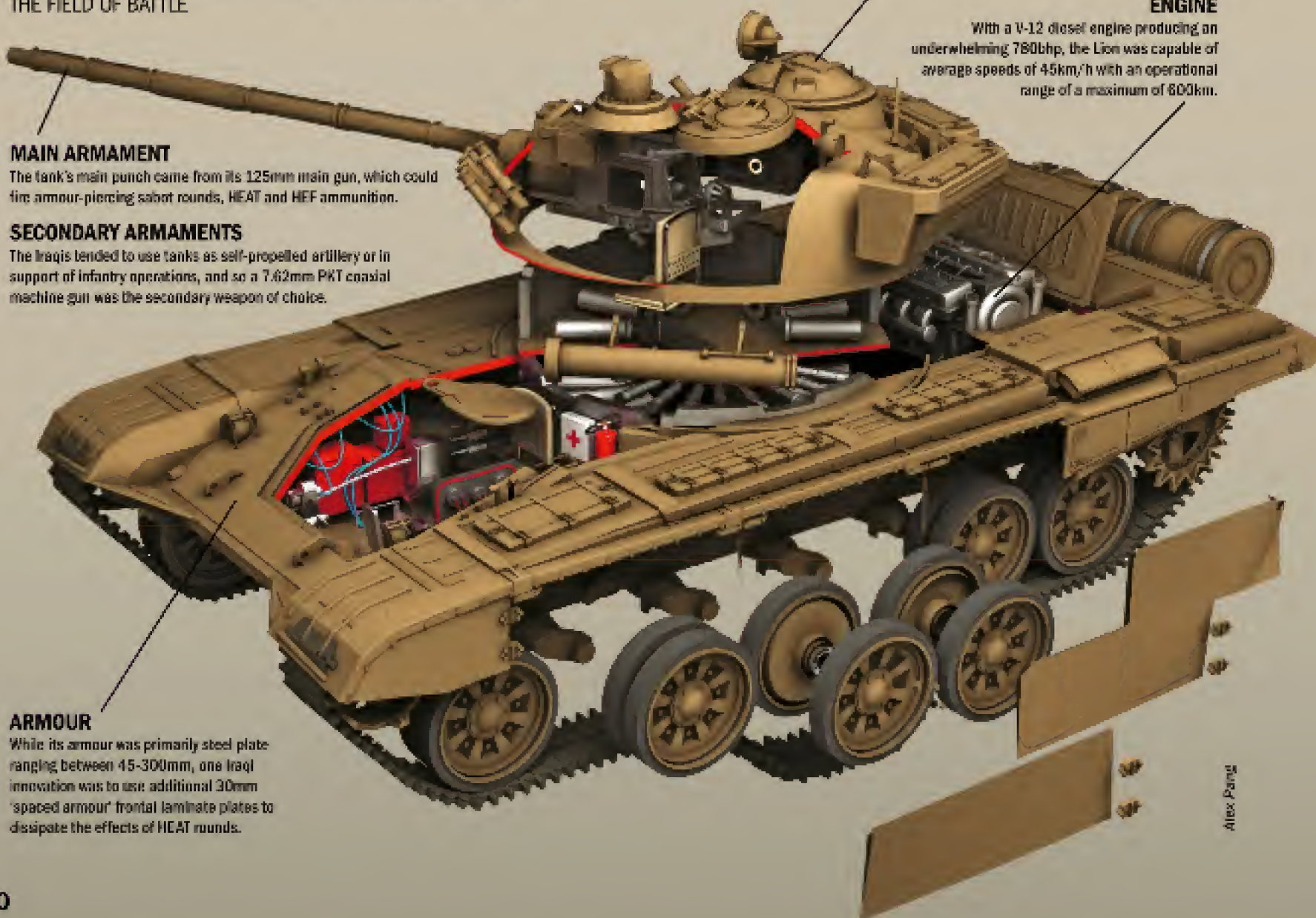
While its armour was primarily steel plate ranging between 45-300mm, one Iraqi innovation was to use additional 30mm 'spaced armour' frontal laminate plates to dissipate the effects of HEAT rounds.

EFFECTIVE COMBAT RANGE

The effective combat engagement range of this tank was 1.6km, which was meagre compared to the British Challenger or the American M1 Abrams tanks.

ENGINE

With a V-12 diesel engine producing an underwhelming 780bhp, the Lion was capable of average speeds of 45km/h with an operational range of a maximum of 600km.



Alex Pang

about to break over their heads. In an excellent example of how questioning Saddam's world view was detrimental to a man's military career, the Iraqi Army Chief of Staff, General Nizar al-Khazraji, was forced into retirement for suggesting that Iraqi forces should withdraw back to Iraq and end hostilities. The rest of the Iraqi staff officers knew that Saddam could easily take more than their jobs and already had a well-established reputation of having officers who displeased him killed. They soon presented Saddam with a defensive plan that made his strategic requirement of holding Kuwait their priority, even though they were very aware that this was a losing gambit, effectively paralysing the Iraqi military before combat operations had even begun.

Iraqi planners understood very well that the primary objective of the coalition would be to destroy as much of Iraq's air power infrastructure as possible, including attacks on aircraft and airfields. Nonetheless, and contrary to their experiences of the Iraqi airforce's dire performance during the Iran-Iraq War, they planned to use air power to provide support to Iraqi ground forces.

The Iraqi Army was to mobilise all its reserves and prepare to deploy the majority of an army of 600,000 men into prepared, dug-in defensive positions. The Republican Guard would be used as a strategic reserve only upon the order of Saddam himself, and they were positioned just north of the Kuwaiti border with the intention that they would shore up any of the weaker Iraqi Army units.

The Iraqi plan was essentially to fight a conventional war against the best-equipped, trained and supplied conventional military force in the world. Saddam's obsession with holding captured territory and not relinquishing it to better serve military aims stems from the way he conducted the Iraqi invasion of Iran. Rather than give up territory that was not essential to military objectives, Saddam made his soldiers fight tooth and nail for seemingly little gain. A mere few years after the Iran-Iraq War ended, and history was already repeating itself.

In a desperate attempt to even the odds, al-Hamdani claims that the Iraqi Command even authorised the use of Scud missiles as well as kamikaze pilots against coalition naval units, such as aircraft carriers. Scud missiles are notoriously inaccurate, as Iraqi attempts were to shortly prove, and even thinking of depending on suicidal pilots demonstrates the desperate situation Iraqi commanders were in.

The storm breaks

Not long after Saddam failed to heed the 15 January 1991 deadline for Iraq to withdraw, Operation Desert Storm was unleashed upon Iraqi forces at 2.30 am on 17 January. For 39 days, the coalition conducted an intense strategic bombing campaign that hammered Iraqi military and civilian infrastructure, notoriously killing 408 civilians who were taking shelter in Baghdad's Amiriyah bomb shelter.

Iraqi aircraft, air defences, early warning radar systems and Army Air Aviation units were destroyed in order to achieve complete command of the skies. The coalition's complete dominance over the airspace made Iraqi command and control facilities easy targets and were subsequently obliterated, further crippling

"SADDAM REFUSED TO WITHDRAW IRAQI FORCES FROM KUWAIT, LEADING TO A WESTERN AND ALLIED ARAB MILITARY BUILDUP IN THE REGION"

Iraq's ability to mount a successful defence. Next on the hit list was the Iraqi military itself, although many Iraqi defensive positions, honed after eight years of war with Iran, proved to be successful at preserving most of the units sheltering there. All in all, more than 100,000 sorties were flown against Iraqi targets, dropping a devastating 88,500 tons of bombs.

Never wanting it to be said that the Iraqi military took a severe bombing lying down, the first real ground engagement of Desert Storm took place on 29 January – after Iraqi forces attempted an offensive to throw the coalition off balance and bring the war back down to the ground, where they hoped to fare better. The Iraqi 5th Mechanised Division, alongside a supporting brigade from both the 3rd Armoured Division and the 1st Mechanised Division, thrust over the Kuwaiti-Saudi

border to take the Saudi port town of Khafji ten kilometres away. Moments after Iraqi forces began to move, they were repeatedly hammered by coalition airstrikes. Nonetheless, the Iraqis still managed to take Khafji by bearing down upon American forces and their Saudi allies.

This victory was very short-lived, however, as throughout the next two days Iraqi forces in Khafji were besieged in the town they had just taken. Coming under heavy bombardment from American airstrikes while also fending off attacks from elements of the US 3rd Marine Regiment and the Saudi 2nd National Guard Brigade, the Iraqis were unable to reinforce their positions due to coalition air interdiction missions preventing any further significant Iraqi penetrations into Saudi territory. After resisting for two days, the Iraqis were forced to surrender and Khafji was

Iraqi soldiers, pictured in 1990, raise their AK-47s in a show of support for their country





THE HIGHWAY OF DEATH

AS IRAQI FORCES FLED KUWAIT, COALITION AIRCRAFT LED BY THE UNITED STATES DEVASTATED THEM, LEAVING BURNING WRECKAGES ON HIGHWAY 80

On the night of 26 February 1991, Iraqi forces ceased combat operations in Kuwait and began withdrawing along the main highway back to Iraq. This large movement of troops and vehicles formed an enormous convoy of closely packed military targets that coalition aircraft, spearheaded by the US Air Force, took as an opportunity to deal a devastating blow.

The withdrawing convoy was subjected to such intense aerial bombardment that by the next day the entire highway was littered with smouldering corpses and burning tank hulks. The Iraqi forces stood no chance, as the coalition had already previously neutralised the Iraqi air force and air defence systems, and gained complete air superiority.

This stretch of highway gained the moniker of 'the Highway of Death' due to almost 2,000 Iraqi vehicles being destroyed and possibly thousands of Iraqi men found killed either still in their vehicles or on the side of the road after trying to escape. To this day, there is no accurate account of exactly how many Iraqi soldiers lost their lives on the Highway of Death, but it is clear that after this event the Iraqi military would never be the same again.



A small stretch of road on the Highway of Death. Even civilian vehicles were caught in the carnage



The twisted metal and wrecked hull of an Iraqi tank. The tank crew would not have survived

"TO THIS DAY, THERE IS NO ACCURATE ACCOUNT OF EXACTLY HOW MANY IRAQI SOLDIERS LOST THEIR LIVES ON THE HIGHWAY OF DEATH"



An American soldier inspects the carbonised bodies of Iraqi soldiers who were killed when their convoy of vehicles was bombed as they attempted to retreat from Kuwait

recaptured on 1 February, with Iraqi casualties numbering 554 men.

Coalition airstrikes showed no signs of letting up, and apart from the Battle of Khafji, the Iraqis made no further attempts to force the coalition into a ground war. This was not because they had given up, but simply because they were denied any opportunity. Instead, they maintained their defensive positions until coalition forces finally gave the Iraqis the land offensive they had desired for more than a month. 24 February 1991 will long be a date remembered as when the Iraqi military jumped out of the frying pan and into the fire. Over the next 100 hours, the war would be decided in favour of the coalition, with Iraq's military forces severely damaged.

Under the overall command of US General Norman Schwarzkopf, coalition ground units launched a spearhead into Kuwait from the south after creating feints to make the Iraqis believe the coalition would invade across Iraq's southern border with Saudi Arabia. Most Iraqi units were incredibly hungry after months of sanctions, and officers reported having to eat bread that was as hard as stone to survive. This had a devastating affect on troop morale, with soldiers surrendering en masse to attacking coalition forces.

Iraq's border with Saudi Arabia is about 810 kilometres long, and with most of the Iraqi forces focused in static defensive positions in the south east of Iraq and inside Kuwait, this left the Iraqis vulnerable to being flanked. The US 7th Corps attacked from the south and fixed the Iraqi forces, and the US 18th Airborne Corps executed a large sweep farther to the west, driving into the Iraqi desert before turning east to cut off escaping Iraqi units. However, the main threat to American plans was still the Republican Guard.

As Saddam's strategic reserve, and having just sustained more than a month of airstrikes, the Republican Guard put up a valiant attempt at salvaging an impossible situation. On the last full

day of fighting in Desert Storm, the Republican Guard at least were capable of being the only unit to temporarily force an American withdrawal.

The Medina Division's 2nd Brigade had entrenched its tanks in defilade along a ridge about 36 kilometres from the Kuwaiti border to conceal their presence from the advancing US 1st Armored Division. With no air support, the Republican Guardsmen attacked ferociously, their anti-aircraft batteries able to shoot down one American A-10 bomber, which forced the American commander to temporarily withdraw his forces to a safer distance, before recommencing attack and eventually overcoming this Republican Guard force.

Realising the futility of continuing the war, and as he watched his forces melting away around him, Saddam called for a full withdrawal from Kuwait on 27 February. Retreating Iraqi forces fled back up Route 80, but were bombed relentlessly, creating the carnage we now know as the Highway of Death.

By the time US President Bush declared a ceasefire on 28 February, Iraqi casualties amounted to more than 200,000, including 35,000 fatalities and 63,000 soldiers captured. In comparison, the coalition's KIA list of 341 was very light indeed. After facing down an alliance of 34 countries, hundreds of thousands of soldiers and thousands of tanks and aircraft, Iraq had lost the Gulf War. The results of Iraq's military misadventure in the Gulf cost it not only a large part of its forces, but also led to it being placed under a merciless sanctions regime that crippled the Iraqi economy and led to the deaths of hundreds of thousands of civilians.

Desert Storm was named 'The Mother of Battles' because, in all its history since its foundation in 1921, the Iraqi Armed Forces had never faced such a devastating campaign of annihilation. The losses suffered by Iraq in one of the most ferocious military campaigns in history presaged the beginning of many long years of suffering that continues to this day.



Iraqi soldiers in Kuwait wave white flags as they surrender to the coalition forces



US aircraft fly over Kuwaiti oil fires set by the retreating Iraqi army

THE DANGER OF QUESTIONING ORDERS

LIEUTENANT GENERAL RA'AD AL-HAMDANI, A FORMER COMMANDER IN THE IRAQI REPUBLICAN GUARD, WROTE ABOUT HIS GULF WAR EXPERIENCES AND THE DANGERS OF QUESTIONING SUPERIOR OFFICERS

"I had the audacity to criticise the Iraqi war plan... The primary problem with [the plan] was that it was based upon the experience of the Iran-Iraq War and was designed taking these precedents into account. The plan should have taken into account the new military environment where we would be facing armies that are at the peak of any standard witnessed throughout military history.

"This military environment was completely different from the one we knew during our war with Iran... and we would be unable to execute our plans due to the overwhelming air superiority enjoyed by the enemy that would make its presence known within days of combat commencing. This air superiority would restrict our movements while granting the enemy full operational freedom of movement in comparison to us.

"As was customary in the Iraqi military, my criticisms were considered unacceptable and politically unjustifiable. My critique was mocked, and one senior officer stated: 'These words are dangerous and clearly run contrary to the wishes and guidance of the President [Saddam Hussein]. They are an attempt to diminish our morale, and your suggestions serve the interests of the enemy.'

"A military investigation committee was set up immediately to investigate what I meant by my words, and if I was truly doubting the orders of the President... I later found out that the man who saved me from these accusations was none other than Qusay, the son of President Saddam Hussein, who had served with me on the front in the Iran-Iraq War in 1983."

"WE WOULD BE UNABLE TO EXECUTE OUR PLANS DUE TO THE OVERWHELMING AIR SUPERIORITY ENJOYED BY THE ENEMY"



THE WAR ON ★ ★ TERROR ★ ★

As one of the world's leading nations, the United States became a target for extremists

106 9/11

On what began as an unremarkable day, the most brutal terror attack against America sent shockwaves across the globe

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Uncover the tragic reality of America's longest war

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Controversy shrouds the circumstances of the war that ousted brutal dictator Saddam Hussein from power in Iraq and sparked a lengthy insurgency

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As Islamic State expanded its power, a strong international response was needed



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9/11: AMERICA UNDER ATTACK

The terrorist attack that changed the world

Until 8.46am, the morning of 11 September 2001, was a perfectly ordinary one for the people on the East Coast of the US. The throngs arriving to work in the World Trade Center in New York City and the Pentagon in Arlington, Virginia, had no idea that they were already the targets of a massive terrorist plot that would unfold over the next few hours. 2,996 of them would never live to see the sunset that day.

Between 7-8am, 19 men with one common goal boarded a total of four flights, two in Boston at Logan International Airport, one at Newark International Airport, and one at Washington Dulles International Airport, all scheduled to make cross-country journeys from the East Coast to the West Coast cities of Los Angeles and San Francisco. None of the planes would ever reach their intended destination, each one hijacked and used as a weapon of terror in an ongoing war against the United States and Western culture.

These four flights were deliberately chosen as all the aircraft would have full tanks of highly flammable jet fuel for a cross-continental flight, thus maximising the damage they could cause.

At 8.46am, the first of these planes hit its target, slamming into the north side of the North Tower of the World Trade Center at 790 kilometres (491 miles) per hour, instantly killing everyone onboard, along with hundreds of people in the tower. The ringleader of the attack, Mohamed Atta, was onboard the plane and is believed to have steered it for its last fateful moments.

The impact caught everyone off-guard, including air traffic controllers, who had lost contact with the plane after a series of cryptic messages from the hijackers in the cockpit. Having never made any demands and turned off the flight transponder at 8.21am, the hijacking wasn't confirmed by air traffic control until 8.34am, and fighter jets weren't scrambled to intercept the doomed aircraft until 8.46am, seconds before it would meet its fiery demise.

What followed was utter chaos, both on the ground and in the air. At this point, authorities were struggling to comprehend what was happening. The hijacking of Flight 175, also headed out of Boston, wasn't known about until several minutes after the first plane hit the World Trade Center, and the military wasn't even aware Flight 11 had hit the tower until at least ten minutes after the attack, initial reports incorrectly stating a small twin-engine aircraft had crashed into the North Tower. The morning would continue to be marked by confusion, panic and late calls.

Only four minutes before the first crash, the last of the fateful flights, United Flight 93, took off from Newark International Airport in direct line of sight of the World Trade Center. Sometime between 8.50-8.54am Flight 77 was hijacked, going unnoticed for several minutes in the chaos that was now unfolding.

At 9.02am, the New York Fire Department ordered the evacuation of both towers of the World Trade Center. At 9.03am, NORAD was finally notified that Flight 175 had been hijacked. That very same minute it hit the South Tower at 943 kilometres (586 miles) per hour, killing all 65 people onboard along with hundreds in the tower. Both buildings were now ablaze, the black smoke billowing out of these landmarks framed against the clear blue morning sky.

For the first 16 minutes after the first impact the media and public didn't know whether they were witnessing a terrible accident or a premeditated attack. When Flight 175 hit during a live broadcast across the globe it all became terrifyingly clear: the United States was under attack.

Things now kicked into high gear. Every available emergency responder in New York was now either at the scene of the inferno or making their way there. The FAA closed all airspace, first over the state of New York and minutes later over the entire United States. All take-offs were halted and all flights were ordered to find the nearest airport and land there. Inbound flights from

"WHEN FLIGHT 175 HIT DURING A LIVE BROADCAST ACROSS THE GLOBE IT ALL BECAME TERRIFYINGLY CLEAR: THE UNITED STATES WAS UNDER ATTACK"



*The Twin Towers stand
blazing in the wake of two
devastating impacts*





An aerial view of New York City shows a huge billow of smoke caused by the attack



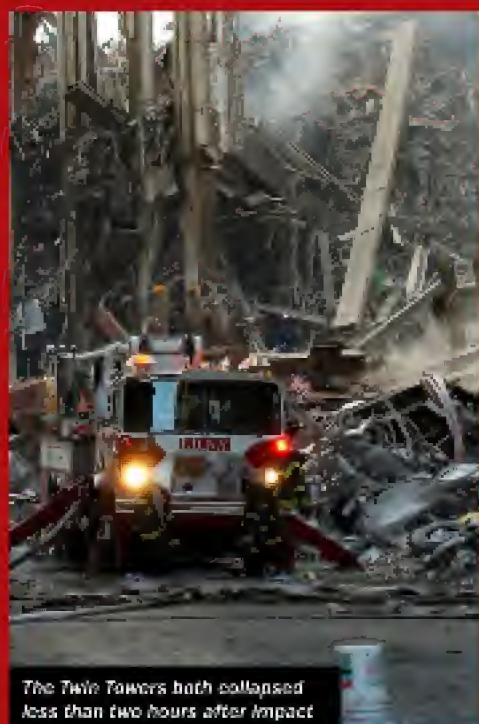
DEBUNKING CONSPIRACIES

Jet fuel can't melt through steel beams

Due to the world's emerging interconnectedness thanks to the introduction of the internet around the turn of the century, conspiracy theories started to circulate almost immediately after the attack. Most of them ranged from being fanciful to deliriously unhinged, and almost all are easily disproven with only a few minutes of research. Perhaps the most famous and enduring one relates to the collapse of the towers.

The towers were built around a central core made from reinforced steel beams as opposed to the older 'metal cage' structure used on other skyscrapers. This led many conspiracy theorists to claim the collapses were the result of controlled explosions instead of a plane impact. According to them, no kerosene fire could be hot enough to melt steel. This was supposedly the proof that 9/11 was an 'inside job'.

In response to this persistent claim, structural engineers and other experts have repeatedly pointed out that the steel in the WTC didn't need to melt to cause the building to collapse – it merely needed to lose some of its structural integrity. A direct hit by a fully fuelled commercial aircraft followed by an inferno burning at upwards of 800 degrees Celsius would certainly do that.



The Twin Towers both collapsed less than two hours after impact



The moment a tragic disaster became an act of war – as the world watches the WTC's North Tower burn on live TV, a second plane crashes into the South Tower, exploding in a terrifying ball of flames

overseas were either forced to return or diverted to Canada and Mexico. However, there were still two flights in the air unaccounted for. Flight 77 had disappeared off radar, the hijackers having turned off its flight transponder before turning it back towards Washington. United Flight 93 from New York then went dark at 9.28am when it was hijacked over Ohio. At 9.37am, Flight 77 crashed into the Pentagon, the immense, iconic headquarters of the United States Department of Defense. At this point it was crystal clear that this was a deliberate act of war against the United States.

United 93 would suffer a different fate to the three other flights. It was originally delayed by about 40 minutes due to take-off queues at Newark Airport, so under normal circumstances it should have been in the air at the same time as the other three flights. Just before the hijackers onboard the flight took control of the plane, news of the World Trade Center attack had started filtering through via airphones to some of the crew and passengers, which is believed to have inspired some passengers to fight back.

The last thing heard on the flight recorder was the sound of passengers invading the cockpit, and the hijackers deciding to down the plane at the last minute. At 10.03am, Flight 93 crashed into a field southeast of Pittsburgh in Pennsylvania. Its target was never known, but according to its flight path investigators believe it was headed for either the United States Capitol building or the White House itself. If the flight had departed on time, it is more than likely this plane would have hit its target too. Meanwhile, in New York, the tragedy of the attack was coming to a head. Both towers collapsed entirely within 30 minutes of each other, the South Tower at 9.59am and the North Tower at 10.28am, as the world looked on, stunned by the suddenness and severity of the event. But who could have done this? Who could have had the means and the motive to perpetrate this unprecedented act?

Suspicion quickly fell on one man and his increasingly powerful terrorist organisation. The US had seen its role in the Middle East and Africa as an interventionist force increase dramatically in the preceding years. With no large country in open conflict with the US, and

considering the nature of the attack, it was clear from that very morning that a government force was not at play, but something much more elusive and nefarious: Al-Qaeda and its leader, Osama bin Laden. Within minutes of the first plane hitting the North Tower, although the real nature of the disaster hadn't been confirmed, those who suspected foul play were quick to point out that bin Laden and Al-Qaeda were more than capable of this crime.

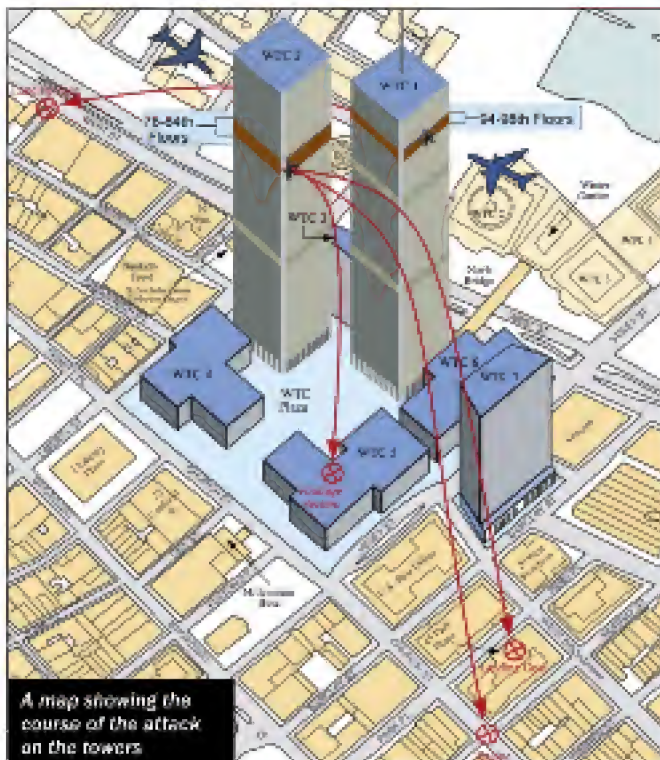
Osama bin Laden and Al-Qaeda had a long, complex and contentious history with the United States. Al-Qaeda's origins lie in Afghanistan, where bin Laden organised and led groups of mujahideen rebels against the aggressive invading forces of the Soviet Union. Somewhat ironically, these rebels were supported and armed by the US as they made a convenient ally in the Cold War between the East and West. However, bin Laden would turn against the US around the outbreak of the Kuwait War in 1990, when US and coalition forces fought alongside Kuwait to overcome an Iraqi invasion of the small but oil-rich country. Along with US support for Israel, bin Laden would cite US intervention

in Middle Eastern affairs, as well as in Muslim countries in Africa, as his justification for escalating a war against the US.

Throughout the 1980s, Al-Qaeda executed a series of guerrilla and terrorist attacks against US targets throughout East Africa and the Middle East. The most notorious of these were a bomb attack against American soldiers in Aden, Yemen, in 1992; a devastating series of bomb attacks on US embassies in East Africa on 7 August 1998; and a suicide attack on the missile destroyer USS Cole in Yemen on 12 October 2000. In addition, a 1996 assassination attempt against President Bill Clinton while on a visit in Malaysia was thwarted with only minutes to spare. These attacks, which claimed several hundred lives, would only serve as a small warning to the devastation

bin Laden and his trusted collaborators would unleash on 9/11. These included Khalid Sheikh Mohammed, one of Al-Qaeda's supreme leaders, and Mohamed Atta, who coordinated the attack on the day. This unprecedented act of terror would have a lasting influence not only on the lower Manhattan skyline but also the cultural and political history of the US. As a result of the attack the Department of Homeland Security was established and the controversial Patriot Act passed, allowing authorities to detain suspected terrorists for an indeterminate amount of time. The US also found itself embroiled in another war in the Middle East. In terms of lives claimed, 9/11 remains the most devastating single terrorist act in the history of the US. In terms of its effect on the wider world, unfolding as it did on live television, it may never be surpassed.

“BIN LADEN WOULD CITE US INTERVENTION IN MIDDLE EASTERN AFFAIRS, AS WELL AS IN MUSLIM COUNTRIES IN AFRICA, AS HIS JUSTIFICATION FOR ESCALATING A WAR AGAINST THE US”



A map showing the course of the attack on the towers



A firefighter weeps after witnessing the human devastation of the 9/11 attacks



Fires caused by the attacks took 100 days for firefighters to extinguish



The aftermath of the attack caused extensive damage to surrounding buildings



AMERICA'S LONGEST WAR

Discover the tragic reality of
America's war in Afghanistan



A sole Afghan policeman
passes the area in which the
'mother of all bombs' was
dropped on IS militants. 2017

In what has become known as 'America's Longest War' since it began in 2001, Afghanistan has suffered almost 20 years of destruction. Tens of thousands of its civilians have died in the crossfire, and for many years it seemed that with every passing day another soldier was killed in action. However, the turmoil in the region is far from over, and the US's mission to destroy the Taliban is looking increasingly out of reach.

Afghanistan (located at the crossroads of Central Asia, the Middle East and the Indian subcontinent) has always been a battleground. However, its mountains, deserts and harsh climate have shielded it from potential invaders, and the tribal structure of Afghan society has made it a diverse – if difficult to govern – place.

In 1979, intense divisions between various ethnic and political factions in the country precipitated an invasion by the Soviet Union, who stepped in to defend Afghan communists against Islamic fundamentalist guerilla fighters known as the mujahideen.

Sensing an opportunity to prevent the spread of communist ideology, the US supported the mujahideen, supplying them with arms and money. However, after the USSR pulled out of the war, the US subsequently lost interest. Afghanistan descended once more into chaos.

It was in these conditions that a new insurgent group, claiming to defend Islamic principles, could thrive. The Taliban (meaning 'students' in Pashto, one of Afghanistan's main tribal languages) grew out of a faction of the mujahideen. They won swathes of supporters

"THE NEXT STEP WAS TO THOROUGHLY ELIMINATE THE TALIBAN SO THAT THEY COULD NEVER POSE A THREAT AGAIN. THIS INCLUDED KEEPING AFGHANISTAN IN GOOD WORKING ORDER"

in rural areas and took advantage of the mujahideen's American resources to exert and expand their influence. By 2001, the Taliban controlled as much as 90 per cent of Afghan soil. Recognising their power, Afghanistan's neighbour Pakistan quickly gave diplomatic recognition to the Taliban, and was even said to have assisted them militarily.

The West was seemingly content not to challenge them. However, when terrorists affiliated with Al-Qaeda attacked the Twin Towers on 9/11, Afghanistan was the focal point for the world's rage. President Bush accused the Taliban of sheltering the attack's mastermind, Osama bin Laden, and demanded they "deliver to the US authorities all the leaders of Al-Qaeda who hide in your land".

When the Taliban refused, the CIA was sent in to come up with an alternative plan of action. Upon arrival in Afghanistan they quickly found a group willing to fight against the Taliban – the Northern Alliance led by Hamid Karzai. While the Taliban controlled the south of Afghanistan, this diverse conglomeration of ethnic groups (from Tajiks and Uzbeks to Pashtuns and Hazaras) retained parts of northern Afghanistan.

After securing their support, the US and UK officially launched an invasion

of Afghanistan on 7 October 2001. Known as Operation Enduring Freedom, the aim was to topple the Taliban and hunt down the perpetrators of 9/11. It began with air strikes, and within months it looked as if the Taliban were finished. Osama bin Laden had fled on horseback to Pakistan's lawless tribal areas, and on 6 December the city of Kandahar (a Taliban stronghold in southern Afghanistan) fell.

The next step was to thoroughly eliminate the Taliban so that they could never pose a threat again. This included keeping Afghanistan in good working order so as to



Northern Alliance men guide the US military on a horseback patrol during Operation Enduring Freedom



Northern Alliance fighters fire on Taliban positions



US troops have maintained a substantial presence in the Afghanistan-Pakistan border regions

prevent the conditions in which they sprung up from repeating themselves. Between 2001 and 2009, \$38 billion (£28.2 billion) in humanitarian and reconstructive aid for Afghanistan was raised by the US Congress. More than half of this went towards training and equipping Afghan security forces so that Western powers would eventually be able to leave combatting the Taliban and Al-Qaeda in the capable hands of the local forces.

The political system also underwent drastic change. In 2002, Hamid Karzai was declared the 'transitional' leader of his country at an emergency Loya Jirga (Pashtun council). He was to be at the helm while it recovered from decades of unrest, providing Afghanistan with a measure of much-needed stability. The US

declared that its role in major combat was over and handed the reins over to NATO in 2003.

In January 2004, a Loya Jirga ratified a new Afghan constitution, which was built around a strong central government, and enshrined the rights of women and ethnic minorities in law. It was hailed as laying the 'foundations for democratic institutions, and [providing] a framework for national election' by the American ambassador to Afghanistan. But in trying to mould Afghanistan into the US model, the new constitution was fatally flawed. Disregarding the tribal structure of society would inevitably breed discontent.

Failing to unite the diverse and divided nation, Karzai was soon seen as a weak leader, and he could hardly leave the presidential

palace. Essentially impotent, he was unable to build a strong national security and police force without foreign help. However, after international interest in Afghanistan waned due to the ongoing war in Iraq, such help would never come.

Additionally, the rest of the funds raised by Congress were not enough to reconstruct beleaguered Afghan communities by themselves. As a result, the rural areas, towns and even cities were largely left undeveloped, and civilians struggled to get back on their feet after the worst ravages of the war. The Afghan economy was therefore reliant on agriculture, and of one crop in particular – the opium poppy.

Opium has been produced in the Afghanistan region for millennia, especially in the notorious Helmand Province. By 2001, Afghanistan was the source of a massive 90 per cent of the world's supply. Most of the money made from opium is generated via the black market. The Taliban control key supply routes, which in turn provides one of their major sources of income.

With their finances secure, the Taliban could rebuild their strength in the border areas of Pakistan. The US tried to destroy them using drones with the covert support of the Pakistani Government but enjoyed limited success. The Taliban made a comeback in Afghanistan in 2005, using new tactics such as improvised explosive devices (IEDs) to play to their strengths and avoid direct combat with the military. In 2007, one IED attack in Baghlan left 70 people – mostly children – dead. The failure of the US to prevent such attacks, as well as mounting civilian casualties of the war, alienated what remained of their local support.

Perhaps sensing that trying to defeat an organisation with a near-limitless membership was an impossible task, Barack Obama changed tack when he came to power in 2008.

THE HUNT FOR BIN LADEN

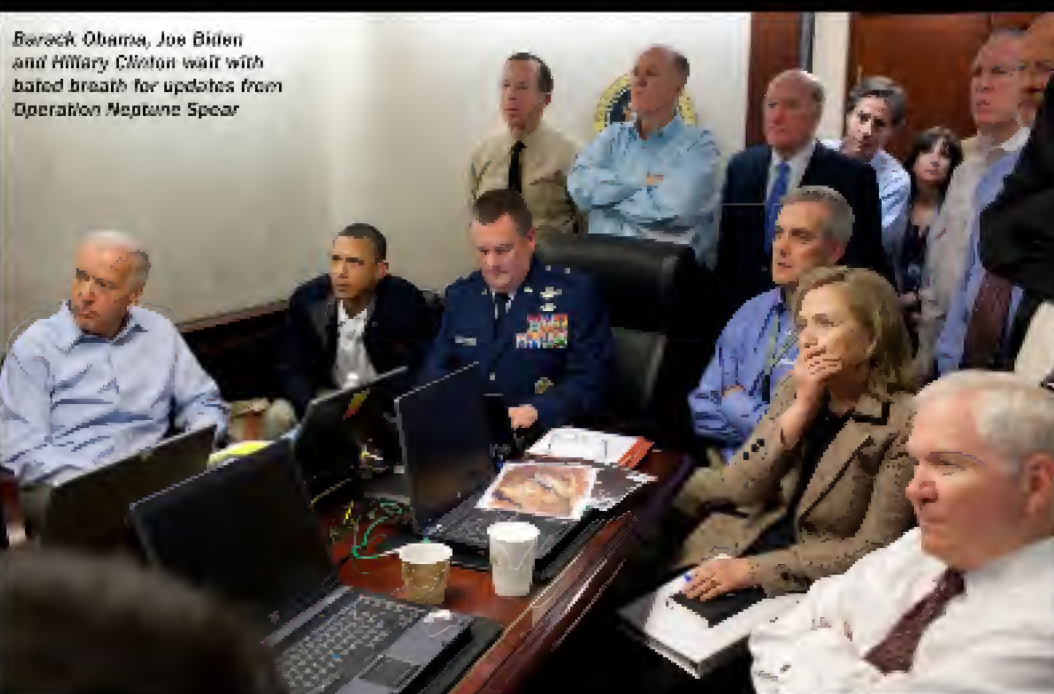
The search for the US's most wanted man lasted over a decade and covered a vast area

After bin Laden escaped into Pakistan, the search for the US's most wanted man began. Bin Laden was a figurehead for Al-Qaeda, and the longer he remained at large, the more people he might inspire. The CIA had to make an example of him.

However, with allies all over the world, finding bin Laden was going to be a difficult task. In ten years he crisscrossed Pakistan, constantly on the move to avoid capture. The CIA extracted information from Guantanamo Bay detainees and eventually found an Al-Qaeda courier they were able to track, in the hope he would unwittingly lead them to bin Laden.

Then, in September 2010, a breakthrough finally occurred after the CIA received a tip-off from a former employee of the Pakistani secret service. They had found a custom, high-security residential compound in mountainous Abbottabad, which they believed to be housing bin Laden. US forces conducted surveillance on the property, and after ensuring their intended target was inside, launched their attack.

With almost 80 operatives, the raid on bin Laden's home (Operation Neptune Spear) was over in 40 minutes. Osama bin Laden was killed along with his wife and brother. The courier who had inadvertently led the US to bin Laden also died during the assault on the house.



Barack Obama, Joe Biden and Hillary Clinton wait with bated breath for updates from Operation Neptune Spear



Mujahideen militia, who had fought against the USSR and now the Taliban, hand in their weapons as part of their reintegration into society.

Right: Making up 20 per cent of the delegates at the 2003 Loya Jirga, two women celebrate the swearing in of Hamid Karzai.



Opting to focus instead on protecting civilians from the Taliban, he embarked on a 'hearts and minds' campaign, which aimed to neutralise militants and eventually re-integrate them into Afghan society. In an unpopular move back home, Obama also committed 30,000 extra American troops to be deployed in Afghanistan by 2010. Later that year, at a conference in Lisbon, NATO declared it would ultimately end its active presence there by 2014.

The pressure was piled on Karzai to enact societal reforms and combat corruption before the international forces left, so much so that in April 2010 he snapped, threatening to join the Taliban himself if the international community refused to stop meddling. His approach sought to bring peace to the region by negotiating with the Taliban. Pakistan even offered to mediate, and tentative talks began.

Meanwhile, Afghan support for the international military presence waned even

further, and social media helped expose the scale of atrocities committed by US and NATO forces. In 2012, two devastating incidents of cruelty (including the Kandahar Massacre, in which a US Marine murdered 16 men, women and children) sparked controversy, causing the Taliban to pull out of the talks.

With the 2014 deadline for withdrawal looming, international forces were keen to remove their soldiers from active combat. Pushing for the handover to Afghan security forces, a series of treaties and agreements were drawn up over the next couple of years. However, Hamid Karzai was digging his heels in over the Bilateral Security Agreement, which would permit almost 10,000 US troops to remain in Afghanistan in non-combat roles.

While the presence of the US military was deeply unpopular, many Afghan politicians saw it as a necessary evil to maintain stability. The deadlock was finally broken in September

2014 when Ashraf Ghani took over from Karzai in Afghanistan's first democratic election – though there were countless allegations of corruption. Ghani immediately signed the pact, and in December 2014 the US ended active combat. Obama welcomed the war's 'responsible conclusion', and sovereignty was restored to the Afghan Government.

The long war appeared to have come to an end. With the loss of nearly 2,500 American troops and over 30,000 civilians, Afghanistan was left to rebuild. Refugees displaced by the war sought to settle back home, and improved education and healthcare programmes aimed to get the country back to normal.

However, the Taliban has recently enjoyed a resurgence, in part due to the rise of Islamic State (IS) militancy. The idea of a stalemate situation in Afghanistan is unacceptable to US President Donald Trump. In 2017, the so-called 'mother of all bombs' was dropped on IS militants there, and in the same year Trump declared that a political settlement with the Taliban was 'far off'.

What the future holds for Afghanistan is difficult to tell, but it is clear that international troops will have a strong presence in the region for years to come.



Hamid Karzai (seated left) and Ashraf Ghani (centre) attend a ceremony in Kabul, 2015



IRAQ WAR: THE DEFEAT OF SADDAM HUSSEIN

Controversy shrouds the circumstances of the war that ousted brutal dictator Saddam Hussein from power in Iraq and sparked a lengthy insurgency

In the summer of 1979, the brutal, sadistic 24-year rule of Saddam Hussein in Iraq began. Principal of the Ba'ath Party, a cabal that espoused a curious blend of Iraqi nationalism and socialism, Hussein became well known worldwide for his willingness to suppress domestic unrest, sometimes using chemical weapons on civilians. His nation provoked a horrific eight-year war with Iran in the 1980s, and further, his lust for hegemony in the Middle East reached new heights with the invasion of Iraq's oil-rich neighbour Kuwait on 2 August 1990.

Despite his failure to achieve complete victories in these aggressive endeavours, Saddam had built the Iraqi military into an engine of war that continued to threaten the stability of the entire region. Following the invasion of Kuwait, however, the decisive defeat of Iraq in the Gulf War of 1990-91 by an international military coalition curbed his ambitions somewhat but still left the dictator in power. Compelled to accept temporary defeat, the Iraqi regime was subjected to a policy of containment, including sanctions on imports and exports, no fly zones to protect indigenous minorities in the north and south of the country from attack, and United Nations resolutions against the possession of weapons of mass destruction (WMDs) that were enforced with periodic inspections.

Nevertheless, the Iraqis were uncooperative with the inspectors, the US Government

mistrusted Saddam, and worldwide condemnation of the regime's unwillingness to comply with disarmament requirements elevated tensions considerably. The inspections did reveal the existence of prohibited technology and certain banned weapons systems in Iraq, but by the autumn of 1998 the Iraqi Government had discontinued cooperation with UN inspection teams completely. The US soon ratcheted up its foreign policy efforts to remove Hussein and the Ba'ath Party from power. Primary concerns were Iraqi possession of chemical, biological, and possibly nuclear weapons, as well as its

probable state sponsorship of terrorism. In 1998, President Bill Clinton authorised the bombing of Iraqi military sites in Operation Desert Fox.

The terrorist attacks of 11 September 2001, brought renewed urgency on the part of the US, and UN Resolution 1441 reintroduced inspections in Iraq. In October 2002, the US Congress passed its Iraq Resolution, authorising President George W Bush to use whatever means deemed necessary to

minimise the Iraqi threat to world peace. Along with the United States, the United Kingdom supported the hard line approach to Hussein and ultimately became the US's principal partner in the military coalition that toppled the dictator from power in the spring of 2003.

On 5 February of that year, US Secretary of State Colin Powell appeared before the UN to present the case against the Iraqi regime. Powell asserted that Hussein possessed weapons of

"BY 1998 THE IRAQI GOVERNMENT HAD DISCONTINUED COOPERATION WITH THE UN. THE US SOON RATCHETED UP EFFORTS TO REMOVE HUSSEIN"



An armoured vehicle
explodes after driving
over an Iraqi mine during
Operation Desert Storm





British soldiers fire an 81mm mortar at enemy positions during heavy fighting for Basra, Iraq's second largest city



Symbolic of the fall of Baghdad, a statue of dictator Saddam Hussein is toppled as the Iraqi capital is occupied

mass destruction in defiance of UN resolutions and that the nation actually sponsored some activities of Al Qaeda, the terrorist organisation that had conducted the September 11 attacks. The existence of weapons of mass destruction and support for global terrorism were the cornerstones of the American rationale for regime change in Iraq, along with humanitarian concerns surrounding documented atrocities that Hussein had committed against his own people.

Subsequent analysis reveals that, just as UN inspectors had reported in early 2003, there was no conclusive evidence that Iraq possessed weapons of mass destruction, resulting in a swirl of controversy as to the veracity of the *casus belli* on which the United States relied to justify military action. The controversy was particularly stinging in context with the protracted insurgency that followed the destabilisation of Iraq, undermining the presidency of President Bush and resulting in a precipitous decline in his approval rating among the American people.

“COALITION AIRCRAFT AND WARSHIPS FIRED PRECISION-GUIDED CRUISE MISSILES AT IRAQI COMMAND AND CONTROL CENTRES AND MILITARY TARGETS THROUGHOUT THE COUNTRY”

On 20 March 2003, the US-led military coalition launched an invasion of Iraq. Codenamed Operation Iraqi Freedom in the US and Operation Telic in the UK, the invasion involved the commitment of land, air and sea assets along with other forms of material aid from approximately 40 countries. Roughly 250,000 American troops, 45,000 British, 2,000 Australian and 194 Polish Special Forces were committed to the offensive, which cooperated with Kurdish forces fighting in northern Iraq and numbering about 70,000.

Coalition aircraft and warships fired precision-guided bombs and cruise missiles at Iraqi command and control centres and military

targets throughout the country. US ground forces advanced across the Kuwaiti frontier from the south. The 1st Marine Expeditionary Force thrust northward along Highway 1 into central Iraq, while the US Army's 3rd Infantry Division moved westward across the desert towards the Iraqi capital of Baghdad. The British 1st Armoured Division struck north and east through marshy terrain, and the 16th Air Assault Brigade of the British Army moved to capture oil fields in the south. Joint operations hit the Al-Faw Peninsula near vital oil installations, and a cooperative effort among the US Marine 15th Amphibious Corps, British 3 Commando Brigade and Polish Special Forces assaulted the city of Umm Qasr near the entrance to the Persian Gulf.

US Marines ran into heavy resistance at Nasiriyah along the banks of the Euphrates River more than 321 kilometres (200 miles) southeast of Baghdad. American forces were ambushed and members of the Army's 507th Maintenance Company were killed or captured. Among those taken prisoner was Private Jessica Lynch, whose dramatic rescue was one of the most stirring moments of the war. During six days of fighting from 23-29 March, 18 Americans were killed and over 150 wounded as Task Force Tarawa of the 2nd Marine Expeditionary Brigade secured a key crossroad position and soundly defeated elements of the Iraqi 11th Infantry Division and the Fedayeen Saddam, fanatical irregular troops loyal to the dictator.

In the south, the British 7th Armoured Brigade fought for over two weeks before securing the second largest city in Iraq, the vital port of Basra. The Parachute Regiment deployed house to house to clear elements of the Fedayeen and the

US Secretary of State Colin Powell appears before the United Nations in the days leading up to the Iraq War



Iraqi 51st Infantry Division, and on 27 March the Royal Scots Dragoon Guards thrashed an enemy armoured formation in the largest tank battle of the brief conflict, destroying 14 Iraqi tanks.

The steady advance of the US 3rd Division was interrupted by a pitched battle for control of Najaf. After the 3rd Division cut off the town, the 101st Airborne Division cleared the buildings. More than 100 Iraqi vehicles were destroyed during the fighting, victims of American M1 Abrams tanks and AH-64D Apache Longbow attack helicopters. Iraqi casualties were estimated at nearly 800, while the Americans lost four killed and two helicopter crewmen taken prisoner when their Apache was shot down. Two Abrams tanks were also lost.

Bypassing the city of Karbala, the 3rd Division continued toward Baghdad through the Karbala Gap, capturing bridges across the Euphrates River and securing Baghdad International Airport on 3 April. The 1st Marine Division advanced to the eastern outskirts of the capital. Although opposition was generally disorganised, it was vigorous at times, particularly on the part of the Fedayeen and the elite Republican Guard of the Iraqi Army. Still, large numbers of Iraqi soldiers surrendered at the first opportunity.

The 101st Airborne cleaned up Karbala, and on 5 April tanks from Task Force 1-64 Armor of the 3rd Division's 2nd Brigade made a 'thunder run' through Baghdad's streets. A second followed two days later. US troops captured the opulent Tharthar presidential palace on the Tigris River that same day and fought off a determined counterattack at the Jumhuriya Bridge across the Tigris on 8 April. Baghdad fell the next day, an enduring image of the toppling of a statue of Saddam Hussein beamed around the world.



US tanks rumble down a major thoroughfare in Baghdad past the Hands of Victory Monument after the Iraq capital's fall

The cities of Kirkuk and Mosul in the north were occupied on 10 and 11 April by Kurdish fighters and US Special Forces troops. On the 15th, Tikrit, the hometown of Saddam Hussein, fell to the US Marines of Task Force Tripoli. Marines rescued the soldiers of the 507th Maintenance Company captured near Nasiriyah and the two Apache crewmen that were taken prisoner and held in Samarra.

On 1 May, President Bush delivered his "mission accomplished" speech aboard the US aircraft carrier Abraham Lincoln and declared an end to major combat in Iraq. However, Hussein and many of his top lieutenants remained at large. The hunt for these senior Ba'athists

continued for months, and the dictator was not arrested until mid December. The war had cost an estimated 139 American lives in combat, while 33 British troops had died. Iraqi losses are estimated at over 9,000 troops and 3,700 civilians. During the insurgency that followed more than 4,400 Americans were killed.

Pockets of resistance remained, the seeds of insurgency sown in the days after Baghdad's fall. The occupation of Iraq and the establishment of a representative government proved daunting tasks to complete before the last US troops withdrew in December 2011 after nearly nine years of direct involvement. The issue of Iraqi WMDs remains contentious to this day.

EXECUTION OF SADDAM HUSSEIN

The brutal Ba'ath Party dictator of Iraq was tried, convicted and executed for his crimes against humanity

On 13 December 2003, in the town of Ad Dawr, Iraq, near his hometown of Tikrit, Saddam Hussein was captured by American soldiers of Delta Force and Task Force 121, 1st Brigade, 4th Infantry Division and Intelligence Support Activity operators. About 600 troops took part in the raid on two possible locations where the dictator had gone into hiding. Saddam was found in a spider hole just as the mission was about to end unsuccessfully. A soldier kicked a loose piece of flooring and had started to toss a grenade down the hole in the event that it led to an insurgent tunnel complex.

Saddam reached the rim of the hole and was immediately disarmed of a Glock pistol and taken into custody. A cache of \$750,000 (£554,000) was recovered during the arrest.

The former Iraqi dictator was examined by a doctor, imprisoned and then tried before an Iraqi Special Tribunal. He was convicted of crimes against humanity, specifically the killing of 148 Iraqi Shiite Muslims in the town of Dujail in 1982. His execution took place on Saturday 30 December 2006, and the Iraqi Government released a video depicting his walk to the gallows and the hangman's noose around his neck. His body was later buried alongside those of other family members.



Sarmir, the Iraqi-American interpreter during Operation Red Dawn - in which Hussein was captured near Tikrit - pins the dictator down



OPERATION INHERENT RESOLVE

With Islamic State expanding its power, a strong international response was needed

The devastating civil war and social breakdown in Syria, which started in 2011 and is still ongoing, has had many terrible effects, both for its innocent civilians and neighbouring nations. The most consequential one, however, may be the rise of Islamic State, often referred to as IS, ISIS, ISIL or Da'esh in media reports. Islamic State is a self-described 'caliphate' founded by militant insurgents who pursue an extremist version of Islam embodied in an all-powerful state with absolute, oppressive rule over its intended citizens.

With Syria in tatters and the neighbouring Iraqi Government still struggling to regain strength after the overthrow of Saddam Hussein's regime, Islamic State took advantage and rapidly expanded its territory, using brutally violent methods to take control of towns and cities. With this rapid expansion they also escalated their attacks in both Middle Eastern and Western cities to spread fear, using suicide bombers, gun attacks and so-called marauding attacks, such as driving trucks and vans into crowds. Add to that the gruesome executions of Western hostages, filmed and broadcast online, and it was increasingly clear that a strong response was needed.

In 2014, the US armed forces intervened. With the support of a growing number of nations around the globe intent on suppressing and then reversing Islamic State's expansion and influence, airstrikes against key targets began in June 2014. In October the campaign was finally given a name: Combined Joint Task Force – Operation Inherent Resolve (CJTF–OIR), meant to 'symbolise the willingness and dedication of coalition members to work closely with our

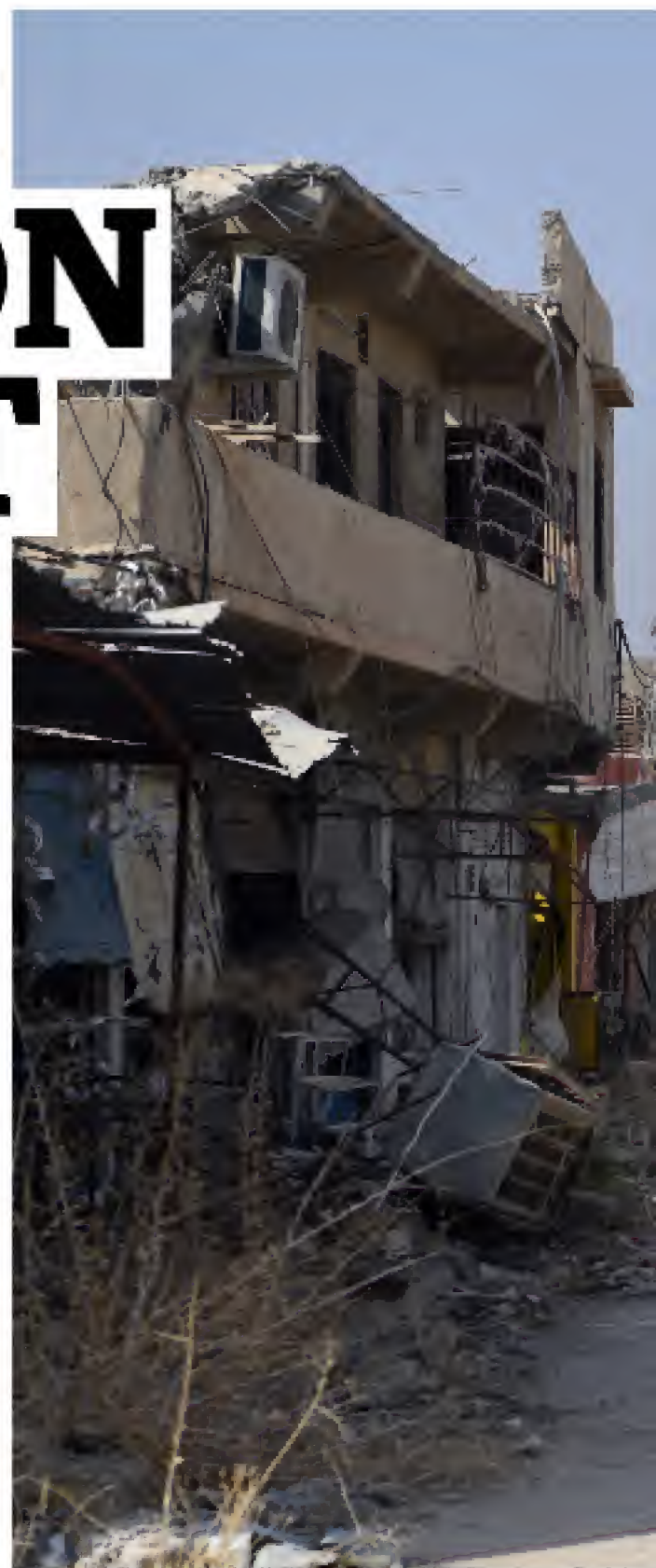
friends in the region and apply all available dimensions of national power necessary – diplomatic, informational, military, economic – to degrade and ultimately destroy ISIL.'

Operation Inherent Resolve primarily focused on airstrikes at the outset, targeting key IS locations, its frontline troops and resource depots, including oil fields and food stores.

The task would be far from easy; IS commanded over 200,000 fighters according to some sources, up to 600 tanks and at least six drones they had commandeered from their enemies. In addition, some nations, such as Saudi Arabia, were suspected of indirectly and even directly funding their forces to sow chaos and division in Iran, Iraq and Syria, although hard evidence of this has yet to come to light.

Operation Inherent Resolve is a four-phase campaign. Phase I, Degrade, focused on airstrikes to slow and eventually stop IS's expansion from Syria into Iraq. By late 2015 the expansion had stopped and Phase II commenced. Named Counterattack, the CJTF began ground operations in earnest, supporting Iraqi security forces and its partners in Syria to take back areas IS had conquered, at each front working their way toward the self-proclaimed caliphate's two capitals: Raqqa in Syria and Mosul in Iraq. As of April 2018, Phase II is still ongoing, although 98 per cent of the area IS controlled at its peak has been liberated. Phase III, Defeat, has commenced alongside Phase II, and in liberated areas Phase IV, Support Stabilization, has also commenced. Phase III consists of strikes in support of the battles for Raqqa and Mosul.

The Battle of Mosul began on 1 November 2016, with a night invasion by Iraqi Special



Forces followed by extremely fierce fighting with strong, emboldened Islamic State forces. Iraqi forces declared victory twice, first in January 2017 and again on 9 July 2017, but fighting continued until 20 July 2017, when Islamic State was finally run out of the city. The death toll was heavy; somewhere between 5,000 and 40,000 civilians were killed, depending on the source, and over 1,500 Iraqi and CJTF soldiers were killed in action, along with up to 16,000 Islamic State fighters.

The Battle of Raqqa began on 6 June 2017, and concluded with a total victory for Syrian and

After years of war and devastation, Mosul faces a rebuilding effort like no other in its long history



"THE BATTLE FOR RAQQA CONCLUDED WITH A TOTAL VICTORY FOR SYRIAN AND INTERNATIONAL FORCES. IS WAS NOW FULLY ON THE RUN"

international forces on 17 October 2017. It had displaced tens of thousands of citizens, but IS was now fully on the run. Neighbouring towns and villages followed, and in early 2018 only isolated pockets of resistance remained, with ground operations and airstrikes continuing.

Phase IV was where the wider international support operation within OIR fully came into play. After the liberation of Islamic State-held territory, an immense humanitarian effort was needed to re-establish anything resembling a community, and an international effort is underway across Syria and Iraq to clear away mines and rebuild

towns and cities that have in some cases been utterly demolished, as well as schools, hospitals and other vital infrastructure. This phase is still in its early stages, but with the continuing support of the international community life has hope of returning to the many towns and cities decimated by IS and the war to defeat it.

As of April 2018, fighting still continues, as have terrorist attacks by IS disciples, both in the Middle East and elsewhere, but Operation Inherent Resolve had done much to minimise the threat of Islamic State around the world.

A BATTLE FOR HISTORY

The fight to reclaim Iraq's most historic city

Perhaps the most important of all of Islamic State's military conquests was the taking of Mosul in 2014, a historic city on the banks of the Tigris in northern Iraq, around 400 kilometres (250 miles) north of the capital of Baghdad. The city, which can trace its history back to the 25th century BCE, then as part of the ancient Akkadian Empire, was home to almost 2 million people in 2014 when Islamic State invaded. What followed was pure devastation. Islamic State authorities subjected its citizens to its oppressive rule and its medieval view of human rights, the role of women and treatment of anyone who didn't agree with their extremist, distorted interpretation of Islam.

In addition, they destroyed countless invaluable historic artefacts, rampaging through museums, demolishing centuries-old monuments, indiscriminately erasing as much of the historic record they deemed inappropriate as they could. The cost of the destruction of Mosul, before and during the fighting, aside from the thousands of innocent civilians who tragically lost their lives, can be counted in the dozens of billions of dollars. The cost to history, archaeology and cultural heritage for Iraq and the wider world can never be measured with a price tag.

A fighter jet takes off from the USS Carl Vinson supercarrier on an OIR mission



Since 2015, ground troops have supported Iraqi Government forces and allies in Syria to defeat Islamic State





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John Moses Browning was undoubtedly the USA's greatest gun designer, a genius whose iconic designs influenced all that followed

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John Browning tests out a Colt
M1895 machine gun.

**"DURING A CAREER SPANNING 64 YEARS,
BROWNING WAS GRANTED 128 PATENTS FOR
HIS DESIGNS AND CREATED SOME OF THE MOST
IMPORTANT AND ICONIC FIREARMS IN HISTORY"**

THE GUNFATHER

John Moses Browning was undoubtedly the USA's greatest gun designer, a genius whose iconic designs influenced all that followed

The USA's most gifted firearms designer was born in Utah in January 1855. The son of the talented gunsmith Jonathan Browning, John Moses Browning was one of 24 children born into a large Mormon family. Aged seven, he began working in his father's gun shop repairing broken guns, building his first weapon at 13. When his father died in 1879, he continued to work with guns and was granted his first patent in October the same year, aged just 24. During a career spanning 64 years, Browning was granted 128 patents for his designs and created some of the most important and iconic in firearms in history.



Right: US troops sight their Browning M1919 at an enemy position during the Korean War



After inheriting his father's shop, Browning began production of his first rifle, a single-shot hunting rifle that he sold for \$25, selling 25 in his first week of production. This simple rifle became popular locally, and in 1883, the Winchester Repeating Arms Company purchased one for evaluation. Winchester were impressed and sent their general manager, TG Bennett, to meet Browning. Bennett bought the production rights to Browning's rifle and a 19-year partnership began.

Over the next decade, Browning developed a series of lever-action hunting rifles, including the iconic Model 1894, simple sporting rifles and the world's first lever-action shotgun: the Model 1887. Before the turn of the century, he patented the M1897 pump-action shotgun, which would become famous for its firepower during World War I, and a number of his first pistol designs.

In 1887, seemingly at the height of his powers, John Browning stopped designing guns. As a Mormon he was obliged to spend two years as a missionary, and in March 1887, at the age of 32, he began to travel and preach in the USA's southern states. In 1889, he returned to his work and by 1891, Browning had been issued 20 patents in just three years, making up for his time as a missionary.

Browning's automatic pistol, rifle and machine-gun ideas all stemmed from one incident in 1889. While out shooting with friends, he noticed how nearby vegetation was moved by gases leaving the muzzle of a friend's rifle. This revelation led him to attempt to capture the wasted energy to cycle his guns. At the age of 34, Browning's revelation would change the world of gun design forever and lead to some of his most brilliant creations.

Harnessing the power of gases created by the firing of a cartridge, he was able to develop a series of semi-automatic pistols, including the Colt Pocket Hammerless 1903 and the legendary Colt 1911; shotguns including the revolutionary Auto-5; and rifles such as the Remington Model 8 and the Browning Automatic Rifle.

Perhaps the most important series of guns to come from this revelation were his machine guns. The first of his 'automatic' guns to be developed was a weapon that would eventually become the Colt-Browning M1895. This was famously nicknamed the potato digger, because when it was set up too close to the ground the reciprocating arm that cycled the weapon was powerful enough to throw up clumps of earth.

The Colt-Browning M1895 was the first of Browning's designs to be adopted for military service and was used during the Spanish-American War in 1898. While the M1895 was

"AT THE AGE OF 34, BROWNING'S REVELATION WOULD CHANGE THE WORLD OF GUN DESIGN FOREVER AND LEAD TO SOME OF HIS MOST BRILLIANT CREATIONS"

THE M1919A4

5 MILLION M1919A4 BROWNING'S SERVED THE US ARMY THROUGH WORLD WAR II, KOREA AND VIETNAM

RECOIL OPERATED SYSTEM

The M1919 used the energy of the ammunition's gases to push the bolt back and cock and load the next round.

REAR FOLDING SIGHT

TRIGGER

TWO-MAN TEAM

The gun was reliable and simple to use, needing just two men to operate it - one to fire and one to load.

RECEIVER

PISTOL GRIP

Unlike other machine guns, but like the British Vickers gun that had a pair of spade grips, the M1919 had a pistol grip.

TRAVERSE AND ELEVATING MECHANISM

BROWNING

Developed from Browning's water-cooled M1917 after World War I as a lightweight medium machine gun, the M1919A4 became the USA's workhorse, being mounted on tanks, ships, jeeps, landing craft, fighter planes and lugged into battle in every theatre of World War II by US troops.

AIR-COOLED

The M1919A4 had a heavy barrel enclosed in a perforated casing, which allowed heat from sustained firing to dissipate.

FRONT SIGHT

SUSTAINED FIRE

The M1919A4 fired at a steady rate of 500 rounds per minute, much slower but a lot more controllable than the German MG 42.

BELT-FED

Like Browning's earlier machine guns, the M1919 fed from simple a 250-round cloth belt.

MOUNTING PINTLE

LIGHTWEIGHT TRIPOD

The M1919's new M2 tripod weighed just 14lb (6.4kg) compared to the M1917's, which weighed 53lb (24kg).



ACTION: RECOIL OPERATED

CALIBRE: .30-06

FEED SYSTEM: 250-ROUND BELT

BUILT: 1919-45

LENGTH: 141CM

WEIGHT: 14KG

Above: Although the M1919A4 had a slower rate of fire than the M1917 models, its lighter weight made it an ideal infantry weapon.

Illustrations: Alex Pang

.30-CALIBRE FIREPOWER

The M1919 fired the US Army's standard rifle round, the .30-06. Belts normally had a tracer cartridge every four rounds to help the operator see where his fire was hitting.



Right: The M1919A4 Browning is one of the world's most prolific machine-guns



not the first machine gun – that honour fell to the Maxim – Browning's weapon was the first in a series of .30-calibre machine guns that would become iconic symbols of American military might, seeing service during both world wars as well as Korea and Vietnam.

Between 1883 and 1900, Browning sold 44 different gun designs to Winchester, only a quarter of which were manufactured and marketed – the rest were simply bought to ensure no other rival gun manufacturer could. Winchester maintained the monopoly over Browning's inventions for 19 years and paid him handsomely. But in 1900, the relationship broke down when Browning demanded royalties, rather than just the single large payment they had previously agreed upon, for his new semi-automatic shotgun: the Auto-5.

Dismayed, Browning took his new shotgun to Winchester's rival the Remington Arms Company, but in a strange twist of fate, as Browning sat waiting to offer them the gun, Remington's president died of a heart attack. Instead, Browning took the Auto-5 to his European contacts and the shotgun was manufactured by Fabrique Nationale (FN) in Belgium.

While Winchester held the monopoly on Browning's rifle designs, Browning's pistols were produced by two other companies. In 1896, he took his revolutionary pistol designs to Colt in the US and FN in Europe. His semi-automatic pistols became extremely popular with civilians and the military on both sides of the Atlantic. One of Browning's pistols, an



COLT 1911

FIRING THE HARD HITTING .45ACP, THE COLT 1911 WAS THE US ARMY'S SIDE ARM FOR MORE THAN 70 YEARS

With more than 5 million made, Browning's Colt 1911 is undoubtedly his most iconic design. Used by the militaries of 30 countries and still in service more than 100 years after it was first developed. The early 1900s saw the US Army search for a modern sidearm to replace its aging and underpowered revolvers. In a series of trials, John Browning's revolutionary pistol designs beat competitors including the famous Luger P.08, to be selected as the US military's new sidearm.

It fired the powerful .45ACP cartridge, specially designed by Browning to provide the

stopping power the military wanted in a semi-automatic pistol. It saw action in conflicts around the world from Haiti, to Mexico, to the trenches of World War I and Africa, the Pacific and Europe during World War II. It was again carried into battle by US troops in Korea, Vietnam and the Gulf War until it was finally retired in 1990. However, elements of the US Marine Corps still use the 1911, making it one of the longest serving sidearms in military history, far outlasting its contemporary rivals.

**ACTION: SHORT RECOIL OPERATED
CALIBRE: .45ACP
MAGAZINE CAPACITY: 7 ROUNDS
BUILT: 1911-PRESENT
LENGTH: 21CM WEIGHT: 1.1KG**

FN M1910, would later be used to assassinate Archduke Franz Ferdinand and spark the beginning of World War I.

When the USA finally entered the war in 1917, the US Army was chronically under-equipped and desperately needed machine guns. Browning provided two weapons that would serve for more than 50 years. The M1917 water-cooled medium gun was an improvement on Browning's earlier model – lighter and more

reliable. The second gun adopted by the US Army was the Browning Automatic Rifle M1918 (the BAR), a light machine gun that could be carried and operated by just one man, greatly increasing the infantryman's firepower.

Browning was undoubtedly a patriotic man, as when negotiating the licensing rights to manufacture these guns for the government, he refused royalties, instead agreeing to a single payment of \$750,000 for his work – all the guns produced during World War I alone would have brought him \$12,704,350 in royalties, saving this money for the war effort. Browning's M1917 design later evolved into the air-cooled M1919, which quickly became the US military's workhorse machine gun, mounted on tanks, jeeps, ships, landing craft and aircraft. Along with the BAR, Colt 1911 and the M2 .50-calibre heavy machine gun, Browning was responsible

“HIS LEGACY IS NEARLY UNPARALLELED IN FIREARMS DESIGN – HE DESIGNED ALMOST EVERY TYPE OF GUN FROM .22-CALIBRE HUNTING RIFLES TO 37MM CANNONS”

WINCHESTER 1892

PRODUCED FOR MORE THAN 50 YEARS, IT BECAME A FRONTIER FAVOURITE AND FOUND FAME IN HUNDREDS OF WESTERNS

As the 19th century came to an end, ammunition became increasingly powerful, but Winchester's iconic 1873 lever-action rifle could not withstand the high pressures the new ammunition created. In 1885, Winchester asked Browning if he could design a stronger action that could fire big-game hunting ammunition. Browning designed the 1885, which fired the hard-hitting .45-70 round that hunters wanted. Six years later, Winchester launched the Model 1892. Slightly smaller but using the same tough action, it fired revolutionary new smokeless ammunition and became an instant hit, with more than

**ACTION: LEVER ACTION
CALIBRE: VARIOUS INCLUDING .44-40 & .38-40
MAGAZINE CAPACITY: 9-ROUND TUBE MAGAZINE
BUILT: 1886-1945 LENGTH: 125CM WEIGHT: 4.5KG**

1 million made. Used by ranchers and cowboys, outlaws and lawmen, Browning's rifles even made it to the North Pole when US Admiral Peary took an 1892 on his expedition in 1908. The rifle was also a favourite of Buffalo Bill and the legendary trick shooter Annie Oakley. In the 1950s, the 1892 found fame on the silver screen as it became the go-to gun for John Wayne and dozens of other movie stars. Its resemblance to the classic Winchester 1873 and its ability to fire blanks made it a favourite with prop departments. More than 8 million of Browning's lever-action 1885, 1892 and 1894 rifles were made.

ARMOURER OF THE WORLD

FOR THE PAST 100 YEARS, MILITARIES AROUND THE WORLD HAVE USED JOHN BROWNING'S RELIABLE, ROBUST AND ICONIC DESIGNS

The US was not the only country to adopt Browning's guns. Before World War I, his FN pistols were extremely popular throughout Europe with the FN Model 1903 pistol adopted by the Swedish army. During the war, the Russian Empire bought 300,000 Winchester 1895 rifles and 15,000 M1895 machine guns. Between the wars, the BAR was adopted by Belgium, Poland and Sweden. Browning's last pistol design, the Hi-Power, was used by both sides during World War II with Britain, Canada and Germany all issuing it. Following World War II, thousands of Browning's weapons were given to countries as military aid from the US. South Korea, Japan, Belgium, France and dozens of South American countries received BARs and Browning machine guns. The M2 .50-calibre heavy machine gun developed in the 1930s is still in service in dozens of NATO countries.

Right: This iconic handgun was used as a standard-issue side arm in the US military until 1985

for the bulk of the US military's arsenal.

On 26 November 1926, aged 71, John Browning collapsed and died at FN's factory in Liege. His legacy is nearly unparalleled in firearms design – he designed almost every type of gun from .22-calibre hunting rifles to 37mm cannons. He developed and improved almost every kind of gun from semi-automatic pistols to pump-action shotguns and heavy machine guns. His guns transcended the changing face of the USA, used by cowboys and lawmen on the last frontiers of the West, soldiers and adventurers like the future President Theodore Roosevelt and by the bootleggers, gangsters and G-Men of the Prohibition era.

During his most productive years, Browning patented more firearms designs than all other American gun designers combined. John Browning was instrumental to the evolution of modern firearms and many of his rifles and pistols are still in production almost 90 years after his death.

“WHEN THE USA FINALLY ENTERED THE WAR IN 1917, THE US ARMY WAS CHRONICALLY UNDER-EQUIPPED AND DESPERATELY NEEDED MACHINE GUNS”



Browning inspects one of his BAR light guns at the Winchester Plant



Images: Alamy, Alex Pang



B-26 MARTIN



Only 17 per cent of B-26s were lost in battle, the lowest ratio of any Allied plane during the war

MARTIN B-26G 'MARAUDER'

ROLE: HIGH-PERFORMANCE TWIN-ENGINE MEDIUM BOMBER

NATIONS SERVED: USA, UK, SOUTH AFRICA, FRANCE

LENGTH: 17.7M (58.3FT)

WINGSPAN: 21M (71FT)

MAXIMUM SPEED: 458KM/H (285MPH)

MAXIMUM ALTITUDE: 6,035M (19,800FT)

RANGE: 1,770KM (1,100 MILES)

CREW: 6/7 MEN

ENGINES: 2 x 1,930HP PRATT AND WHITNEY R-2800-43

ARMAMENT: 11 x .50-CALIBRE BROWNING MACHINE GUNS

BOMB LOAD: 1,814KG (4,000LB)

"AFTER SOME MODIFICATIONS AND EXTRA PILOT TRAINING, THE B-26 BEGAN TO REALISE ITS POTENTIAL AS A BOMBER THAT COULD TURN THE TIDE OF THE WAR"

RAUDER



B-26 bomber nicknamed 'A Key Pee's Dream', which was later hit by flak during a raid over France



Nicknamed the 'Flying Torpedo', this US Army Air Force war bird helped crush the Axis from the skies

The B-26 was the workhorse of the United States Army Air Force (USAAF) bombing operations of World War II. First introduced in 1941, 201 Marauders were ordered straight off the drawing board with no time to build and test a prototype.

Part of President Roosevelt's 50,000 aircraft for US defence programme, it went on to serve in both the European and Pacific Theatres, flying out with the 22nd Bombardment Group the day after the attack on Pearl Harbor.

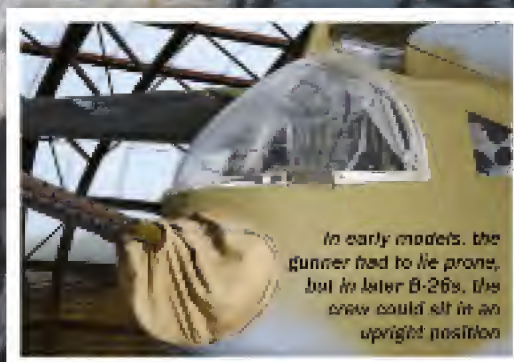
An innovative cantilever shoulder wing monoplane design, the aircraft began unimpressively as it recorded a number of training accidents with 15 crashing in 30 days, earning it the nicknames 'Widow Maker' and 'Martin Murderer'.

The design put cruise efficiency ahead of handling at low speeds, so many crews initially stayed well away from the aircraft. However, after some modifications and extra pilot training, the B-26 began to realise its potential as a bomber that could turn the tide of the war.

Used for tactical air support, 5,157 B-26s were constructed, with the RAF also purchasing 522. It was most effective in the European Theatre, operating in medium-altitude attacks in Normandy and the invasion of Italy. B-26s also saw service in the Battle of Midway in the Pacific Theatre. As the war ended, the role of the Marauder was fast diminishing. The majority were retired from service by 1947, and only a handful remain in existence today as relics of the mass World War II bombing operations.



From the B model onwards, the B-26 became the first aircraft of the war to use powered weapons pods



In early models, the gunner had to lie prone, but in later B-26s, the crew could sit in an upright position

ARMAMENT

The B-26 boasted some serious weaponry. 11 .50-inch machine guns provided an immense amount of firepower with four guns on the fuselage sides, one in the nose, two in the dorsal and tail area and two in ventral positions. These turrets were the first of their kind and rotated on large ball bearings. Experienced gunners could turn 360 degrees and create a diagonal swathe of fire to shoot Axis fighters out of the sky.

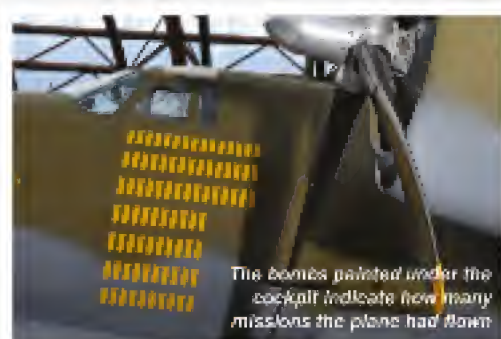
As well as the main armament, some B-26s included several smaller .30-inch machine guns, which were dotted around the fuselage. These guns acted in a defensive capacity and would protect the aircraft from enemy fighters and anti-aircraft positions when on bombing runs. The rear gun was invaluable as it helped take down Messerschmitts, Zeros and any other Axis planes on the bomber's tail. However, the B-26's main feature was its bombs. It had two bomb bays, one in the fore and one in the aft. Up to 1,814 kilograms (4,000 pounds) could be carried for devastating strike sorties.

In addition to the larger guns, .30-inch machine guns were installed on the front and rear transparent nose cones

PROPULSION

To carry the weighty payload, the B-26 used two four-bladed propellers. It was the first Allied aircraft built in World War II to use four blades in its propulsion system and could generate up to 1,930 horsepower. The Pratt and Whitney R-2800-43 wasn't limited to the Marauder, and was also used on other US aircraft such as the F4U Corsair, F6F Hellcat and P47 Thunderbolt fighters. The 18 cylinder engine was incredibly versatile and was used in planes in the Korean War as well as World War II.

The undercarriage of the B-26 was unique in its design. Using a tricycle shape, it incorporated a nose wheel rather than the traditional tail wheel. It had a landing speed of 209 kilometres per hour (130 miles per hour), unusually high for a plane of the era, and remained an effective, if unorthodox, control system for a medium bomber. The design of the B-26 was altered in development and it originally featured a twin tail, but this was dropped in favour of a single fin to give the tail gunner a better view of oncoming targets.



The bombs painted under the cockpit indicate how many missions the plane had flown



The aircraft's power system was so advanced that it could create a supercharging effect at higher altitudes

THE B-26 OF THE UTAH BEACH MUSEUM

HAVING BEEN AT THE MUSEUM SINCE 2011, THE MARAUDER IS A POPULAR EXHIBITION AND ONE OF ONLY SIX LEFT IN EXISTENCE

The Marauder on display at the Utah Beach Museum in Normandy arrived in France on 20 May 1945. It was put into service too late to fly in any combat missions and it resided in the French base at Mont-de-Marsan, just south of Bordeaux. After the war, it was painted in French Army colours and given to Air France, who used the aircraft to train future mechanics. It was later donated to the French Air and Space Museum in 1967 and locked away in storage for 25 years. However, in 1993, it resurfaced as technicians tasked with refurbishing the plane found that numerous pieces of original equipment were missing. A restoration team managed to locate the missing parts as the B-26 neared its original condition. In 2011, the plane was moved to the Utah Beach Museum and repainted in the colours of the 386th Bomb Group, who served with distinction on D-Day. For more information on the museum and its work, please visit: www.utah-beach.com



During D-Day, the US 9th Air Force attacked German defences on Utah Beach, where this B-26 is currently housed

"THE REAR GUN WAS INVALUABLE AS IT HELPED TAKE DOWN MESSERSCHMITTS, ZEROES AND ANY OTHER AXIS PLANES THAT WERE ON THE BOMBER'S TAIL"



Above: Based on practicality rather than comfort, the cockpit wasn't big on crew luxuries

COCKPIT

The armour-plated cockpit of the B-26 was operated by a pilot and a co-pilot. A centre console stood at the front, which included the throttle as well as propeller and mixture controls. The controls for the landing gear and flaps were at the back of the console. Notoriously tricky to handle for many pilots, many had no experience of twin-engine aircraft prior to the B-26. The weight of the Marauder also made the stalling speed and landing speeds higher than the majority of other planes in the US Military. The early issues with the B-26 were down to its rushed production, as it was overloaded with equipment and put into low-level attack missions, something it was completely ill-equipped to undertake.



The crew of a Marauder comprised a pilot, co-pilot, bombardier, radio operator, navigator, dorsal gunner and tail gunner

BOMBERS OF THE USAAF THE OTHER AIRCRAFT THAT THE USA USED TO BOMB GERMANY AND JAPAN INTO SUBMISSION

B-25 MITCHELL

The Mitchell was once the most heavily armed plane in the world. It participated in the 1942 Tokyo Raid, the first Allied attack to strike the Japanese home islands.



B-24 LIBERATOR

The most produced US aircraft of the war, an astonishing 18,400 were made. The Liberator served all over the world utilising its range of more than 2,000 miles.



DOUGLAS A-26 INVADER

Also sometimes called a B-26 but not to be confused with the Marauder, the A-26 was a versatile and long-serving aircraft. It served in the Korean and Vietnam wars.



B-17 FLYING FORTRESS

As the name suggests, the B-17 was a giant of the sky. Many were based in the UK and deployed to Germany to take part in relentless daylight bombing raids.



CONSTRUCTION

It may have been rushed off the production line, but the B-26 was a sophisticated war machine. Entering, and subsequently winning, a competition for a new US medium bomber in 1939, one of the major differences between it and its predecessors was the use of plastic. Before the Marauder, military aircraft were made mostly out of metal, but the B-26 changed this by using cheap and readily available plastic. It also used butted seams

rather than lapped seams in its covering, making the fuselage more streamlined, earning it the 'torpedo' nickname.

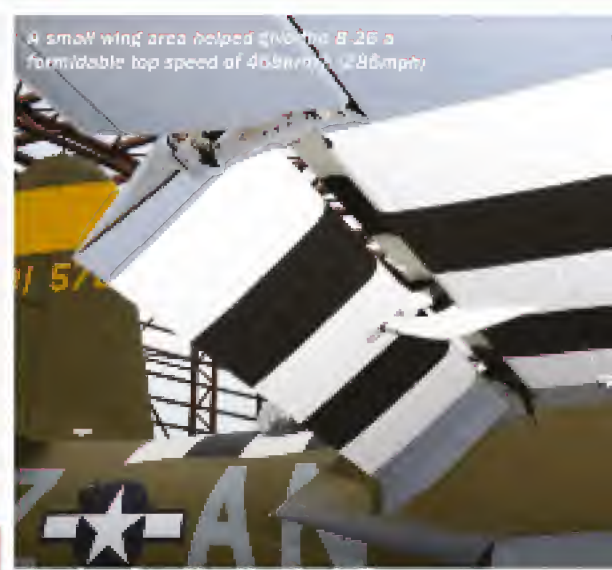
The Marauder carried so much equipment that it couldn't sustain much flak before getting in trouble. This made it ineffective at low-level attack missions, meaning it was soon changed to a medium-level bomber to make it more durable in combat. The original models also suffered from problems with the landing gear, but these were corrected by a heat treatment process that improved the hydraulic system.

"BEFORE THE MARAUDER, MILITARY AIRCRAFT WERE MADE MOSTLY OUT OF METAL, BUT THE B-26 CHANGED THIS BY USING CHEAP AND READILY AVAILABLE PLASTIC"

The design was put forward by Peyton M. Magruder of the Glenn L. Martin Company, but was a work in progress for the first few years of its life.



A shoulder-mounted monoplane design, the engines had a forward placement in the wings so the cockpit could keep a closer eye on their condition.



A small wing area helped give the B-26 a formidable top speed of 409 mph (286 mph).

THE AMERIKA BOMBER PROJECT

During the latter stages of the war, a long-range bomber was sought-after by the Axis powers. With the added resources and manpower from the USA bolstering Britain and the USSR, attacks on the American mainland could stunt Allied wartime production significantly. The 'Amerika Bomber' and 'Project Z' programmes were put forward by Nazi Germany and Imperial Japan respectively. The Germans prototyped the Messerschmitt Me 264 for strikes on New York from continental Europe in

December 1942. Heavily armoured and fitted with a turbocharged engine, it would have been very similar to the USAAF B-29 Superfortress. The proposal could have feasibly worked, but constant Allied bombing and a lack of raw materials in the Third Reich dashed hopes of a transatlantic attack. As for Project Z, the Japanese simply did not have the engine power to make a realistic effort at attacking the USA. The Ha-44 engine was the most powerful available at the time, but it would have suffered cooling problems trying to lift a bomber capable of sustained attacks on American soil.

Only three ME 264s were built before the German project was abandoned.





ULTIMATE COLD WAR WEAPONS

From the destructive and terrifying, to the stealthy and downright weird, the Cold War saw the United States and its rivals develop some truly unbelievable military hardware

Nuclear missiles may have defined the Cold War but, while looming annihilation might have had those who lived through the four decades of the mid-20th Century ready to 'duck and cover' at any moment, an arms race of a different kind was also underway.

While Russian and American nuclear stockpiles ramped up from a few thousand

warheads in the late 1950s to a combined total of nearly 70,000 during the Cold War peak of the late 1980s, a battery of strange and terrible weapons were being developed on both sides of the Iron Curtain. Some of these were outlandishly impractical, prohibitively expensive or too awful to ever be made a reality. Some saw limited use while others evolved into today's

military technology, or pushed new boundaries in aviation, just like the SR-71 Blackbird seen here.

Others still, like the Tsar Bomba, were freakish extremes of more conventional weapons. Here are just some of the silliest, scariest and most ground-breaking Cold War technologies to ever have been conceived.

LOCKHEED SR-71 BLACKBIRD

CREW: ONE PILOT AND ONE RECON SYSTEMS OPERATOR

WINGSPAN: 55FT 7IN (16.7M)

MAX SPEED: 3,674 KM/H (2,283MPH)

RANGE: 5,925KM (3,682 MILES)

MAX ALTITUDE: 85,000FT+

POWER: 2 X PRATT & WHITNEY J58-15

LOCKHEED SR-71 BLACKBIRD

YEAR: 1968 **COUNTRY:** USA

AMONG THE STEALTHIEST AND FASTEST BIRDS OF THE SKY, THIS AIRCRAFT TOOK THE WAR TO THE EDGE OF SPACE

After the U2 incident in 1960, the US military knew it needed a faster, stealthier plane for keeping the Soviet Union under surveillance. Developed by the prolific Lockheed, the SR-71 Blackbird was a technological marvel of its day, capable of breaking the sound barrier and going almost completely undetected by enemy radar.

Appearing like a machine straight out of science fiction, the Blackbird pushed the boundaries of what we thought was possible. With a top speed of over 3,674 kilometres per hour (2,283 miles per hour), and a maximum altitude in excess of 85,000 feet, the plane truly pushed the limits of what was thought capable for aircraft at the time. The pilots were able to reach such intense altitudes, in fact, that they were forced to wear astronaut-esque suits to survive the conditions near the extent of the Earth's atmosphere.

A close-up view from inside a Blackbird's cockpit



The pressurised suits, similar to those worn by early astronauts, that the Blackbird's pilots had to wear



A view of the left side of the Blackbird while on its 1,000th sortie





SUPERSONIC LOW ALT

YEAR: 1959 COUNTRY: USA

BECAUSE THE COLD WAR WOULDN'T HAVE BEEN THE SAME WITHOUT A REALLY NASTY NUCLEAR WEAPON

The Supersonic Low Altitude Missile – or SLAM – was developed under the similarly innocuous-sounding code name Project Pluto and was an unmanned vehicle for a nuclear payload. In the event of the anticipated nuclear war, it could be launched to fly at supersonic speeds

of up to Mach 4.2 over extreme ranges of nearly 200,000 kilometres (120,000 miles). It could achieve these speeds at low altitude and below enemy radar, trailing a powerful sonic shockwave that could shatter windows, flatten small structures and burst eardrums.

SLAM was capable of deploying a varied payload, from a single 8,400lb nuclear bomb to several separate 350lb bombs on multiple targets. This made it a versatile weapon of mass destruction and certainly one to be feared if it had ever been commissioned.

But it's the ramjet engine that is SLAM's particularly horrible innovation: this device superheated air from the inflow via nuclear fission, rather than igniting chemical fuel. As a result, its exhaust wasn't the benign contrail left in the sky by a common jet aircraft, but radioactive fallout that would contaminate the ground below it.

Even more devastating, the reactor core was practically unshielded, blasting any living thing along SLAM's flight path with a deadly dose of direct neutron radiation. Once its supersonic journey was complete, SLAM would then career into its strategically chosen crash site, which would be thoroughly irradiated by the exposed engine core.

Thankfully, the inherent problem of safely testing the nuclear ramjet as well as its cost, among other factors, meant SLAM was ultimately shelved in 1964.

The Tory II-C nuclear ramjet engine, one of SLAM's two working prototypes tested for five minutes at the Nevada Test Site in 1964.



TRACKING AND COMMUNICATIONS

SLAM was accurate to within around a single nautical mile, or about 1.8 kilometres. Flight computers and antennae were housed in the nose cone and were shielded from the nuclear payload and ramjet. It could reach any target on Earth inside of around two hours.

NEVADA TEST SITE

AMERICA'S NO. 1 SPOT FOR NUCLEAR EXPERIMENTS

After the first use of nuclear weapons in 1945, the US Government founded the Atomic Energy Commission in 1946 to regulate, control and develop nuclear materials. Comprising dozens of separate areas, nuclear tests were conducted at the site between its opening in 1951, until testing was officially

ceased in 1992. Over 800 nukes were tested, mostly underground, during this time, leaving the landscape visibly scarred with craters. In 1970 the 10-kiloton Baneberry test went wrong and the radioactive cloud emitted by the blast escaped up to 3,084 metres (10,000 feet) into the atmosphere.



RAMJET

The nose cone retracted during flight to provide the air inflow for the nuclear ramjet. This type of engine is air-breathing and cannot produce thrust unless the vehicle is moving at speed. SLAM used nuclear fission to heat the air to around 500 degrees Celsius (932 Fahrenheit) and compressed to 316 pounds per square inch.

ALTITUDE MISSILE

NUCLEAR PAYLOAD

SLAM could carry one large nuclear bomb or several smaller bombs, which could be dropped on separate targets. This was its primary weapon, although the radioactive contamination it spread could be just as devastating.

BOOSTERS

Although the nuclear ramjet would be activated at the moment of launch, the missile launch itself would be via chemical rocket boosters to a safe cruising altitude. The US Army couldn't be irradiating its own country, after all.

SUPERSONIC LOW ALTITUDE MISSILE

WEAPON TYPE: INTERCONTINENTAL BALLISTIC MISSILE

MAX SPEED: 5,145KM/H (3,196MPH)

MAX RANGE: 200,000KM (124,274MI)

PAYLOAD: NUCLEAR BOMB (UP TO 6,400LB)

FUEL: ENRICHED URANIUM DIOXIDE

OPERATIONAL WEIGHT: 27,669KG (61,000LBS)

LENGTH: 26M (88 FEET)

STATUS: PROTOTYPE (CANCELLED)

"ITS EXHAUST WASN'T THE BENIGN CONTRAIL LEFT IN THE SKY BY A COMMON JET AIRCRAFT, BUT RADIOACTIVE FALLOUT THAT WOULD CONTAMINATE THE GROUND BELOW IT"



TSAR BOMBA

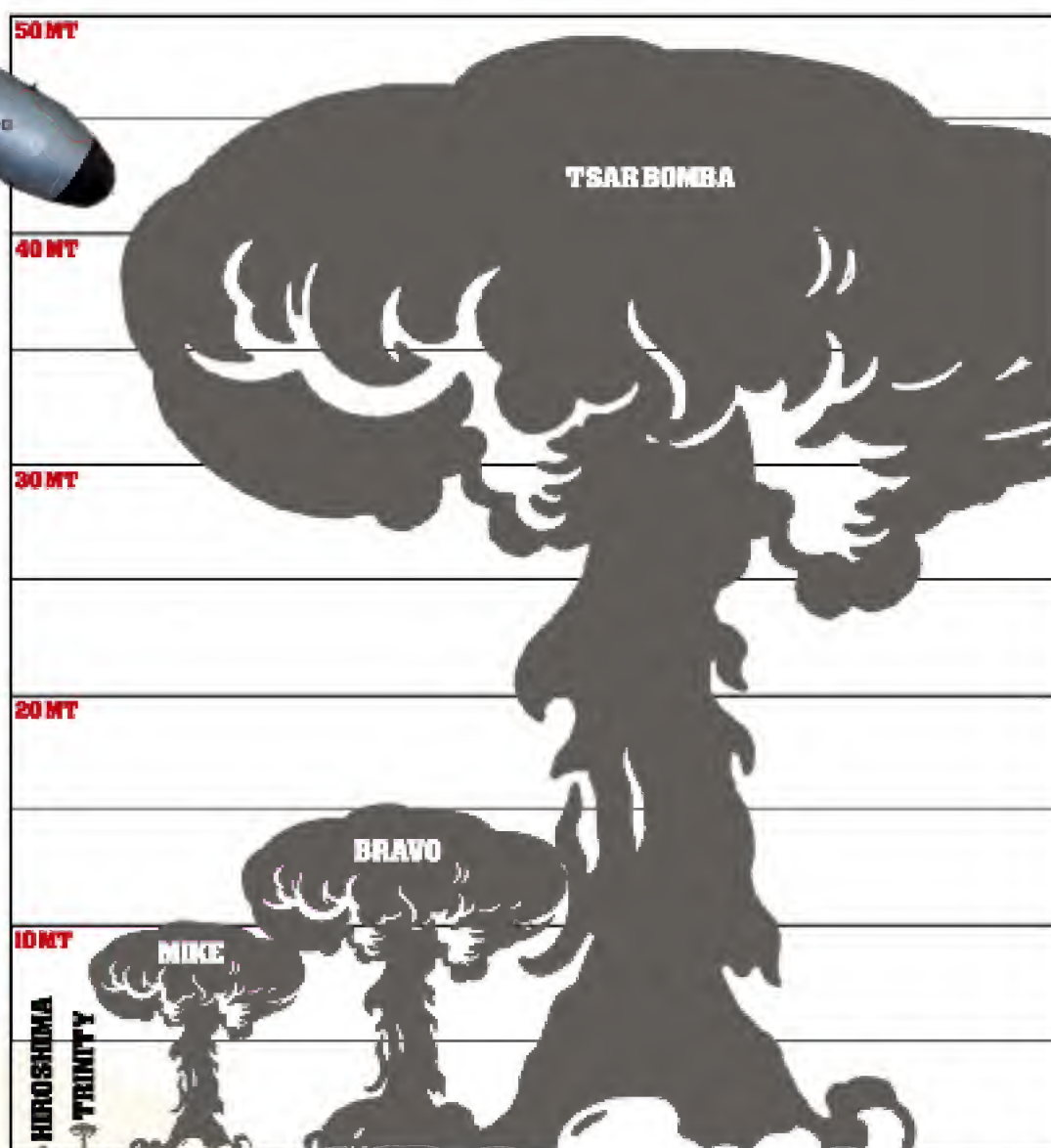
YEAR: 1961 COUNTRY: SOVIET UNION

BY FAR THE BIGGEST NUCLEAR WEAPON ON EARTH TO EVER BE DETONATED

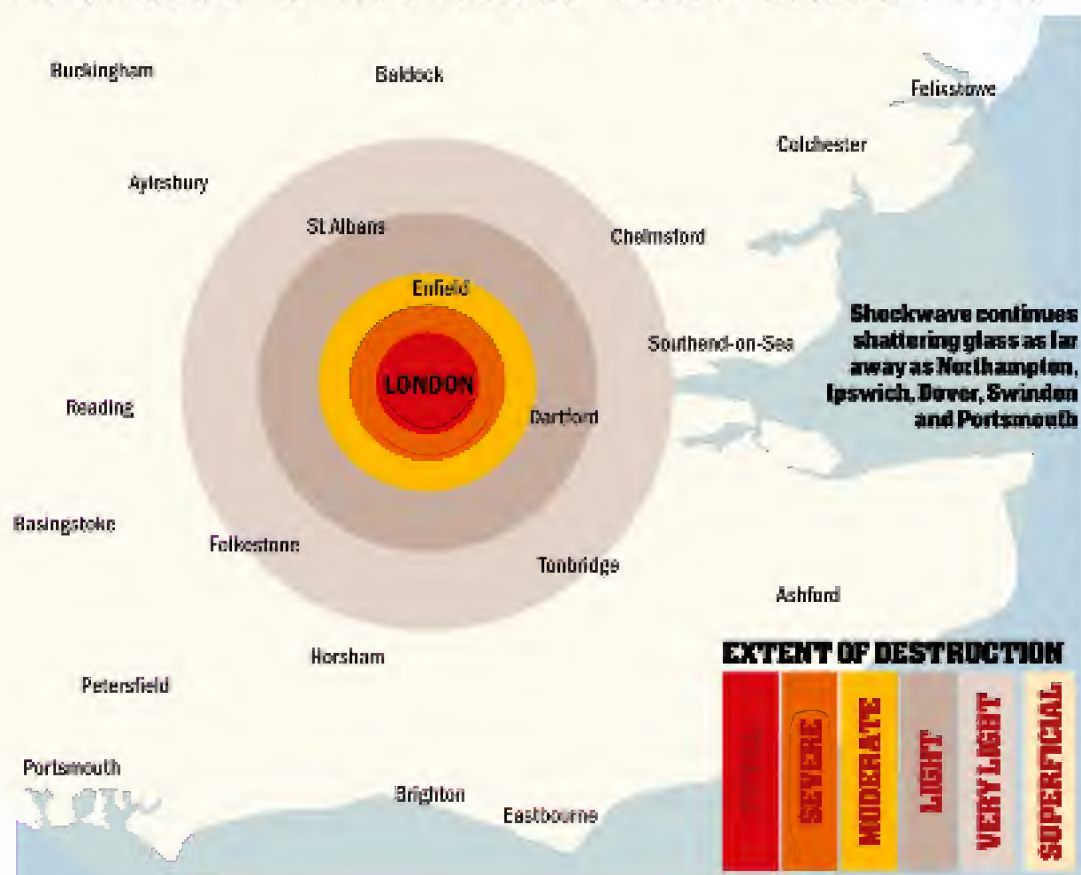
In a particularly deadly period of Cold War tensions, the USSR wanted to flex its military biceps, yet it didn't have the technology to compete with the speed and accuracy of US missiles. Soviet premier Nikita Khrushchev ordered the creation of a nuclear bomb that had four times the yield of its American opposite – a real whopper at 57 megatons.

On 30 October 1961, an explosion rocked the uninhabited Russian archipelago of Novaya Zemlya, north of the Arctic Circle. Delivered by a modified Russian 'Bear' bomber and filmed by a six-man camera crew, this was the biggest man-made device to ever have been detonated on the planet: the Tsar Bomba, or 'Emperor Bomb' blast was equivalent of all the combined munitions used in World War II – multiplied by ten, or the power of around 1,500 times the nuclear explosions that devastated Hiroshima and Nagasaki. This was a three-stage bomb that detonated a primary fission bomb to compress a secondary nuclear device, which then used the combined energy to detonate a larger fusion explosion that accounted for around 97 per cent of the blast.

A crucial stage had been changed so that not only was the blast smaller and safer than the 100 megaton yield Khrushchev first had in mind, but relatively clean for a nuclear explosion.



COMPARATIVE DESTRUCTION OF LONDON BY TSAR BOMBA



The bombing crew barely had time to clear the area before a fireball eight kilometres (five miles) in diameter erupted from the drop zone. The mushroom cloud that emerged from the explosion passed right through the stratosphere, and at 64 kilometres (40 miles) high, was more than seven-times the height of Mount Everest – that's nearly four-times taller than the 15-megaton US Castle Bravo bomb detonated in 1954. Heat from the fireball would have caused third-degree burns to those up to 100 kilometres (62 miles) away, the shockwaves broke windows 900 kilometres (560 miles) away and if it weren't for the fact that the bomb was detonated while it was in the air, seismic shockwaves would have equalled an earthquake of 7.1 on the Richter scale.

Ironically, the magnitude of the Tsar Bomba explosion had the effect of unsettling both the American and Soviet governments, resulting in a treaty signed by both Premier Khrushchev and President Kennedy to ban bomb tests in the air, underwater and outer space.

TSAR BOMBA

WEAPON TYPE: THERMONUCLEAR BOMB
YIELD: 57 MEGATONS (TNT EQUIVALENT)
WEIGHT: 27,000KG (60,000LB)
LENGTH: 8M (26FT)
STATUS: ONE MADE, TESTED

DAVY CROCKETT

YEAR: 1956 COUNTRY: USA

THE LITTLE LAUNCHER
WITH A BIG PUNCH

A soldier inspects an M-388 Davy Crockett rifle on a tripod at Aberdeen Proving Ground in Maryland, 1961. A Jeep-mounted version was also developed



Terrified of the anticipated march of the Soviet army across the German border, the US took it upon itself to stop Khrushchev in his tracks before he had a chance to get a foothold in Western Europe. Nuclear devices being the most advanced and powerful weapons available, the 'Atomic Annies', enormous cannons that could fire nuclear ordinance over a long range, seemed an obvious choice. The US had three of these, but they were difficult to conceal and would make obvious targets if war broke out. So the army plumped for something more covert: a nuclear weapon that could be deployed by just three trained soldiers or mounted on a Jeep: the M28 and M29 Davy Crockett weapon system.

This was a tactical nuclear recoil-less gun that resembled a rocket launcher, but which fired a deadly nuclear projectile rather than a chemical explosive. The accuracy was very poor over long range and often missed the target by hundreds of metres, but that didn't matter much, because the warhead had a yield of around 20 tons of TNT, for a blast radius of up to 2.7 kilometres (1.7 miles). Anyone who survived within 400 metres (1,312 feet) would die of radiation sickness in days, and anyone within 150 metres (492 feet) of the blast would be bathed in an instantly deadly blast of radiation. Around 2,100 were made from 1956, tested in the Nevada Test Site and finally deactivated in 1967.

DAVY CROCKETT

WEAPON: M-388 NUCLEAR FISSION DEVICE

MAX RANGE: 2.7KM (1.7 MILES)

EQUIVALENT YIELD: 20 TONNES OF TNT

RADIATION HAZARD: 10,000 REM (DEADLY)

FIRING MODES: HEIGHT-OF-BURST DIAL

STATUS: DEACTIVATED

FLYING SAUCER

YEAR: 1960 COUNTRY: USA

AS IT TURNS OUT, IT WAS ONLY THE LITTLE GREEN MEN THAT WEREN'T REAL

FLYING SAUCER

EST. TOP SPEED: 483KM/H (300MPH)

ACTUAL TOP SPEED: 56KM/H (35MPH)

EST. MAX ALTITUDE: 3,048M (10,000FT)

ACTUAL MAX ALTITUDE: 1M (3FT)

EST. RANGE: 1,600KM (995 MILES)

ACTUAL RANGE: 127KM (79 MILES)

STATUS: CANCELLED (1961)

Amid the B-movie fears of an alien invasion that led to public reports of saucer-shaped spacecraft flying over the United States, someone decided maybe these things were real and some newfangled Russian technology was responsible. If the Russians had flying saucers, then America had better hurry up and develop its own. That person was maverick aircraft designer John

Carver Meadows Frost and the Avro Canada VZ-9 Avrocar was his brainchild, developed for the US military while working for Canadian company Avro Aircraft Ltd.

The VZ-9 Avrocar was a vertical take-off and landing (VTOL) aircraft developed under similar principles as the famous Harrier Jump Jet. It was disc-shaped with a single, powerful turborotor and intake in the centre that blew exhaust out along the rim. It was originally intended as a supersonic fighter aircraft for the US Air Force, and then as a 'flying Jeep' for the US Army. Frost estimated that his concept could achieve a speed and altitude that could easily outstrip any USAF craft of the day. The reality of what the Avrocar could achieve was somewhat sobering.

After several enthusiastic rounds of military funding and prototype testing, it was found that Avrocar's top speed fell far short of Frost's estimates, reaching just 56 kilometres per hour (35 miles per hour) and worse, it would wobble out of control if it flew more than a couple of metres above the ground.

Later modifications that attempted to mitigate this inherent instability only served to generate so much heat that the Avrocar would bake its instruments a worrying brown colour after a couple of flights. Funding was pulled and the military abandoned the Avrocar in 1961.

The roll-out of the Avrocar AV-7055, one of several prototypes





CASPIAN SEA MONSTER

YEAR: 1966 COUNTRY: SOVIET UNION

THIS BEAST OF A RUSSIAN AIRCRAFT HAD WESTERN MILITARY INTELLIGENCE BAFLED AND CONCERNED FOR DECADES

Back in the 1960s the Russian 'Ekranoplan' was so secret that even using the word was banned among those in the know. It wasn't until an American spy satellite flew over the Caspian Sea in 1966, taking photographs as it went, that Western eyes got their first glimpse of this very unusual and very large boat plane.

The sheer size of this vehicle alone was enough catch the eye of US intelligence officers analysing the photos: it was nearly 100 metres (328 feet) long from nose to tail, bigger than any seaplane and much bigger than any US aircraft, which led them to name it the 'Caspian Sea Monster'. It also seemed incomplete compared to other aircraft and was a strange shape, with box-like wings and engines

that were too far forward on the main body. Conventional aeronautics suggested that this aircraft – if that's what it was – wouldn't fly well at all, so it had to be something else altogether.

The Caspian Sea Monster was actually a very big Wing In Ground effect (WIG) craft, or Ekranoplan, a kind of boat plane hybrid that takes advantage of an aerodynamic phenomenon called 'ground-effect'. When the Ekranoplan flies close to the ground or water, it produces a cushion of air that increases its lift by up to 40 per cent, making it much more efficient than any aeroplane.

This could have allowed the Sea Monster to transport armoured vehicles and hundreds of troops at high speeds across the water. Plus, of

course, because it flew just a few metres above sea level, it would have been invisible to enemy radar at the time.

The Caspian Sea Monster itself was a research craft that was bigger than any jumbo jet and sunk in 1980 after a pilot error. The Soviets eventually went with a more effective version of the original that was less than half this size. Ultimately, plans were made to deploy up to 120 Ekranoplans in the 1990s but, with the fall of the Iron Curtain, only a few were ever built.

POWERFUL ENGINES

Ekranoplans needed immense thrust to get them going, supplied by these Dobrynin VD-7 turbojet engines each capable of nearly 30,000 pounds of thrust.

STRANGE CONFIGURATION

This is what had the US military intelligence baffled when it laid eyes on the Ekranoplan for the first time. By placing the engines forward of the wings, the air is compressed between the water and the wings, creating a cushion for the craft to ride upon.

MULTI PURPOSE

The Caspian Sea Monster was a research vessel with no armaments, but the Ekranoplan could fulfil a number of roles, including transportation and a mobile field hospital. The Lun-class Ekranoplan could house two cannons in a tail turret, as well as six anti-ship missiles.

IS IT A BOAT? IS IT A PLANE?

A boat plane is an aircraft that can use water as a runway, but an Ekranoplan is confined to water yet flies just above it. It caused problems for Russian military classification at the time, as it was designated a marine vessel and part of the naval fleet, yet it was piloted by air force test pilots.

"THE RUSSIAN 'EKRANOPLAN' WAS SO SECRET THAT EVEN USING THE WORD WAS BANNED AMONG THOSE IN THE KNOW"

LUN-CLASS EKRANOPLAN

THOUGH THE SEA MONSTER WAS LONG DEAD IN THE WATER, ITS DESIGN WAS NOT LOST FOREVER

Unrecoverable from the bottom of the Caspian Sea, the failure of the Ekranoplan experiment didn't deter Soviet authorities enough to scrap the program altogether. By 1987 the next boat-plane monstrosity, MD-160, was racing across the waters, testing its formidable engines as well as its mounted missiles. Designated as the Lun-class (meaning Hammer), MD-160 entered service in the Black Sea Navy Fleet, but was retired shortly after the fall of the Soviet Union. After the Cold War thawed, there was no need to make any more Luns, leaving MD-160 the only one of its kind – a forgotten relic of a more threatening and ambitious time.



CASPIAN SEA MONSTER

LENGTH: 92M (301FT)
WINGSPAN: 37.6M (123FT)
RANGE: 1,500KM (932 MILES)
WATER DISPLACEMENT: 544 TONNES
TOP SPEED: 500KM/H (311MPH)
STATUS: SEVERAL BUILT (MOTHBALLED)

THE BULGARIAN UMBRELLA

YEAR: 1978 COUNTRY: SOVIET UNION

IT MIGHT SOUND LIKE SOMETHING OUT OF A PINK PANTHER FILM, BUT THIS DEADLY COVERT WEAPON WAS NO JOKE

In 1978, Bulgarian-born Soviet dissident Georgi Markov was walking across Waterloo Bridge in London to his workplace at the BBC, when he felt a stinging sensation on his thigh, as if he had been stung by a wasp or pricked with a needle. When he turned to the direction of the sting, he saw a man picking up an umbrella from the floor and quickly crossing the road to catch a taxi on the other side. Markov thought little of it but later, in work, he discovered that not only had the stinging sensation not

subsided, but the area of the sting was swollen and an angry red. He became ill hours later and was admitted to hospital with a high fever. Four days later he died – the cause of death: poisoning by the deadly toxin, ricin.

The pellet that delivered the poison was metallic and the size of a pin head, with two tiny holes drilled through it to create a cavity in the shape of a cross. This had been filled with ricin and the entire pellet had then been coated in a sugary substance designed to melt at just

THE BULGARIAN UMBRELLA

WEAPON: WEAPONISED UMBRELLA

AMMUNITION: RICIN PELLET

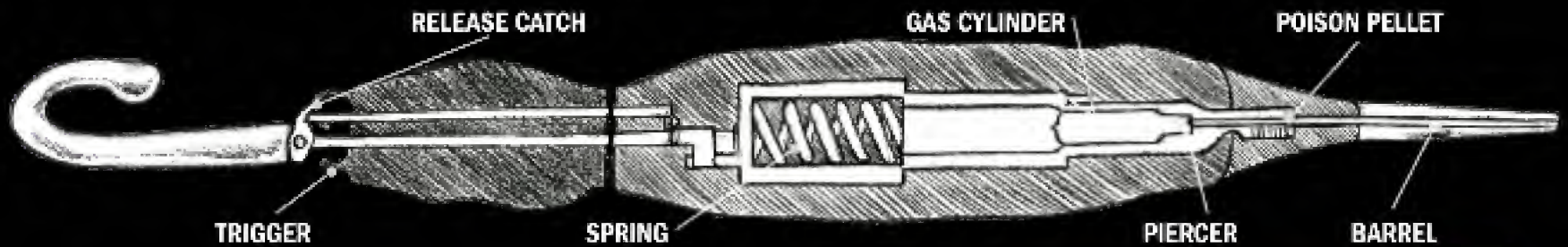
CALIBRE: 1.7MM

FIRING MODES: SINGLE SHOT

STATUS: CLASSIFIED

below body temperature, allowing the ricin to be absorbed into Markov's bloodstream.

Although the weapon itself was never recovered, a clandestine umbrella device was thought to have shot the pellet and naturally, the finger was pointed at the Soviet secret service – the KGB – though the assassin has never been identified.



THUNDER WARRIOR FIGHTER

YEAR: 1961 COUNTRY: USA

THE JET INTERCEPTOR WITH THE COOLEST NAME ON EITHER SIDE OF THE IRON CURTAIN

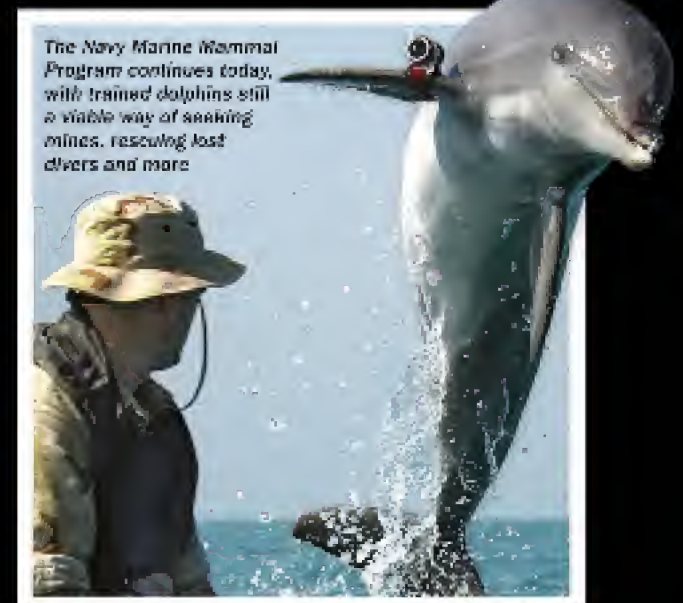
Getting any conventional aircraft to fly at more than a couple of times the speed of sound was tough in the 1950s, so the Republic XF-103 was a special concept. Designed to intercept Soviet bombers with nuclear-tipped missiles, at altitudes of above 18,000m (60,000ft) and speeds of up to Mach 3 (over 3,500km/h), the Thunderwarrior Fighter had a mock-up built and a prototype planned, but never completed.

ATTACK DOLPHINS

YEAR: 1960 COUNTRY: USA

AND NOW YOU'VE HEARD IT ALL...

Yoking their deep-diving ability and sonar, it was discovered that dolphins could be worked with in open water and to help the US Navy track lost divers, then guide them back to safety. Not only that, they could be used to locate enemy underwater mines and more sinister tasks still: to kill, lay mines and even embark on kamikaze missions against enemy submarines. Their potential as a viable part of the US Cold War effort was recognised, so the Navy Marine Mammal Program (NMMP) was classified in 1967. The program is still alive and swimming today.



The Thunderwarrior Fighter had a fully pressurised cabin



HOMING OVERLAY EXPERIMENT

YEAR: 1976 COUNTRY: USA

AN ANTI-NUKE WEAPON CONSIDERED TO BE LIKE 'HITTING A BULLET WITH A BULLET'

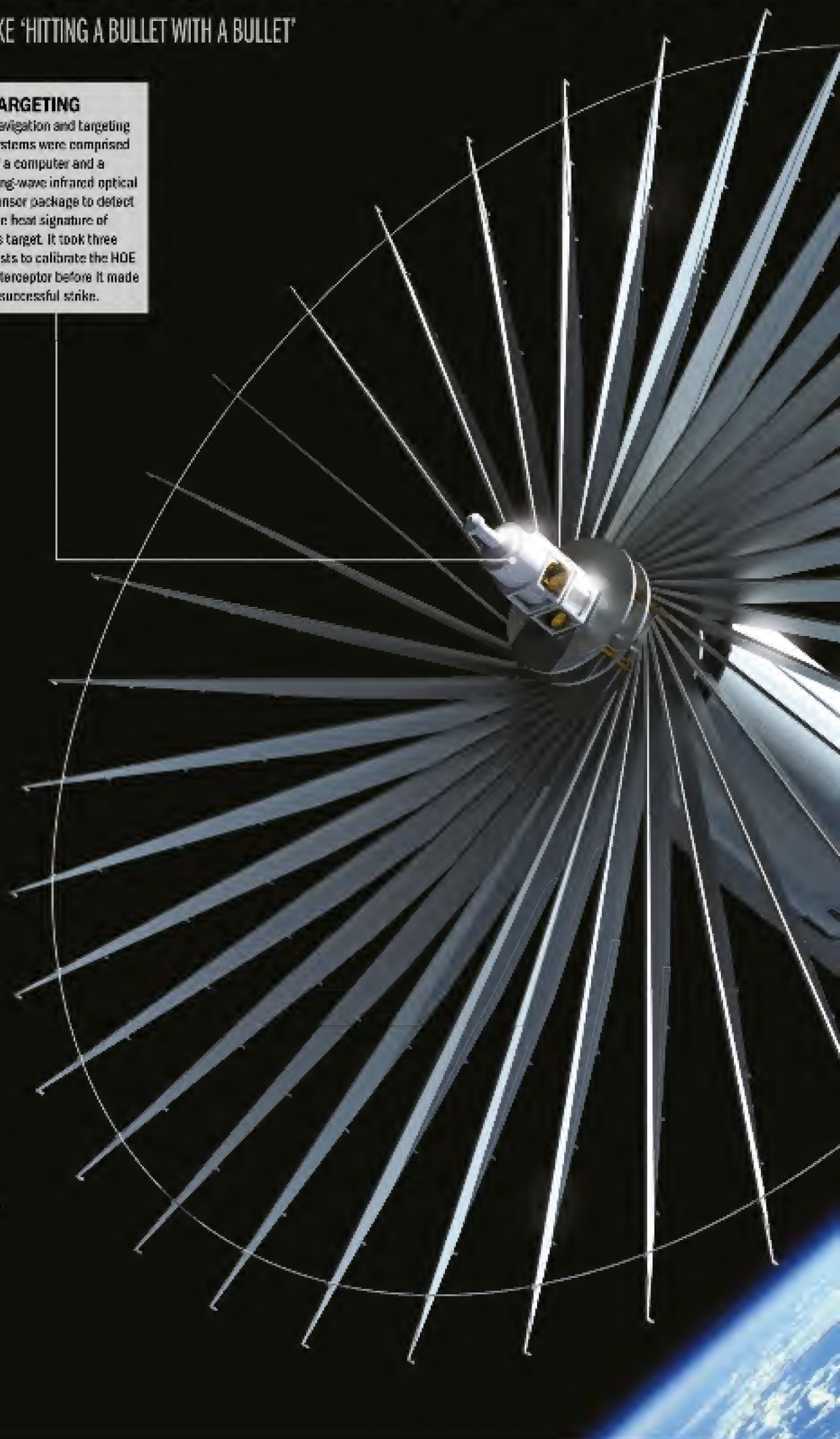
At the Cold War peak in the 1960s, the deployment of weapons and defence systems from space (or at least, extremely high altitude) became the new playthings for both Communist and Western governments. On the US side of the Atlantic, president Ronald Reagan's opposition to the doctrine of mutually assured destruction meant that the US military was investing time into researching the means of defending America against a nuclear strike, rather than the weapons required for a retaliatory attack. Cue the Homing Overlay Experiment (HOE).

In 1984, the US Army launched two missiles at each other from either side of the Pacific. One was launched from California with a dummy warhead and a trajectory that would take it 7,242 kilometres (4,500 miles) away to a spot near Kwajalein Atoll. The army waited for the missile to pop up on Kwajalein's radar before launching their experimental counter-measure to intercept it. This was a kinetic weapon that looked much like another missile, until it approached the nuclear dummy outside Earth's atmosphere at more than 185 kilometres (114 miles) altitude. Here, it unfurled a huge, ribbed aluminium net to increase its lethal radius and made directly for the dummy, striking it at such speed that both were practically vaporised. This fourth test was the first to be considered a success and was likened to shooting a bullet out of the air in mid-flight with another bullet.

This was the first non-nuclear missile defence technology: prior to HOE, the only means any country had of defending against a nuclear strike was to detonate another warhead in the air to destroy everything in its blast radius. Obviously, the subsequent radioactive fallout from this method could have had dire consequences for the world. While HOE itself was, thankfully, never needed, the force-of-impact technology it pioneered has been passed down to today's US missile defence systems.

TARGETING

Navigation and targeting systems were comprised of a computer and a long-wave infrared optical sensor package to detect the heat signature of its target. It took three tests to calibrate the HOE interceptor before it made a successful strike.



HOMING OVERLAY EXPERIMENT

TOP SPEED: 4,572 M (15,000FT) PER SECOND

TESTED RANGE: 7,242 KM (4,500 MI)

WEAPONRY: RADIAL NET

LENGTH: 21.5M (70.6 FT)

STATUS: PROTOTYPE BUILT

EXPERIMENT

HIT TO KILL

The HOE Interceptor was armed with nothing more than an aluminium net with 36 ribs and steel fragments that unfurled to expand the radius of the vehicle and increase the odds of hitting its target.

"PRIOR TO HOE, THE ONLY MEANS ANY COUNTRY HAD OF DEFENDING AGAINST A NUCLEAR STRIKE WAS TO DETONATE ANOTHER WARHEAD IN THE AIR"

HEAVYWEIGHT

The kill vehicle alone weighed 1,180kg (2,600lbs) and combined with the kill device (the aluminium net) it made an explosive charge redundant: at its top speed, any target the HOE interceptor struck would be vaporised.

SPEED IS OF THE ESSENCE

A two-stage Minuteman booster drove the HOE Interceptor at over two miles per second into its target – a pretty amazing feat, considering its target was moving at a similar speed.

STRATEGIC DEFENSE INITIATIVE

HOW AMERICA TOOK ITS HOMELAND DEFENCES TO THE EDGE OF SPACE

Founded in March 1983 by President Ronald Reagan, this government program was designed to intercept, rather than launch, nuclear strikes. Nicknamed the Star Wars program, it not only produced systems to deal with missile attacks on the US, such as the HOE, but also experimented with laser and X-Ray technology. The program had cost an estimated 30 billion dollars by the time it was abandoned in the early 1990s.





A Chinook lowers supplies to US troops on the ground during the Vietnam War

H-47 CHINOOK

The ultimate heavy-lift tandem-rotor helicopter, the iconic American Chinook delivers military support, a powerful assault capability and can even act as a flying hospital, providing aid to those in need

Initially designed and built by Boeing Vertol in the early 1960s, the CH-47 Chinook is now manufactured by Boeing Rotorcraft Systems at their recently modernised Ridley Park facility near Philadelphia. The CH-47A first entered service with the United States Army on 16 August 1962. Due to the outbreak of the Vietnam War in 1965, the Chinook entered into a baptism of fire on the front line and was heavily utilised, providing a heavy-lift capability. For a short time it also operated as a gunship.

The lack of a tail rotor permits nearly 100 per cent power to be used for lift, making it ideal for aircraft recovery missions, salvaging many damaged airframes. This recovery effort returned thousands of aircraft to service through regeneration programs and saved the USA billions of dollars. In total 349 CH-47As were built, but many of these suffered damage and 79 were lost during Vietnam.

The need for higher performance saw the CH-47B/C quickly designed and introduced.

The CH-47B had Allied Signal Engines T55-L7C – rated at 2850shp (2,130kW) – installed, and improvements to the fuselage were also introduced. The C model had larger capacity fuel tanks and an uprated transmission system. CH-47A/B/C models all served in Vietnam between 1965 and 1973. By the 1970s, the Chinook received global interest and worldwide sales started.

After the Vietnam War, Boeing and the US Army began planning a major fleet upgrade that led

to development of the CH-47D. The first prototype flew on 14 May 1979 and the first production aircraft flew on 26 February 1982. 441 early model Chinooks went through an extensive modernisation process in Philadelphia that produced an essentially new CH-47 fleet. CH-47D deliveries to the US Army took place until the mid-1990s.

The D model had a more powerful Honeywell L-712 engine that could handle a 25,000-pound useful load – nearly twice the Chinook's original lift capacity. These engines were upgraded again to the L-714A variant. The CH-47D was heavily involved in United States Army combat operations in the Gulf War, Bosnia, Operation Iraqi Freedom and Operation Enduring Freedom in Afghanistan.

Several rolling modernisation programs continue to ensure this multi-mission aircraft remains in service through to the 2030s and beyond. With the number of variations, Boeing has more recently marketed the Chinook as the H-47. Modern versions of the H-47 have been built under license in Italy

“THE LACK OF A TAIL ROTOR PERMITS NEARLY 100 PER CENT POWER TO BE USED FOR LIFT, MAKING IT IDEAL FOR AIRCRAFT RECOVERY MISSIONS”

CH-47F

FUSELAGE 15.46M (50FT, 9IN)
HEIGHT 5.63M (18FT, 7.8IN)
FUSELAGE WIDTH 3.78M (12FT, 5IN)
FUEL CAPACITY 3914 LITRES (1034 GALLONS)
MAXIMUM SPEED 302KM/H (170 KTAS)
MISSION RADIUS 200NM (370.4KM)
SERVICE CEILING 6,096M (20,000FT)
MAX GROSS WEIGHT 22,680KG (50,000LBS)
CREW 2 PILOTS, 2 LOADMASTERS/CREWMEN

(CH-47F) and Japan (CH-47JA+) in addition to the CH-47F/MH-47G that are produced in the United States. Boeing already has plans for a CH-47F Block II that will feature a series of upgrades focused on increasing payload, providing commonality across the fleet and creating a foundation for affordable future upgrades. A swept tip, composite advanced rotor blade has already been developed, providing an estimated 1,500 pound increase in payload.

Since the Chinook's introduction over 50 years ago more than 1,200 vehicles have been delivered to 18 operators, with over 800 aircraft still in operation today. The CH-47's workhorse reputation has made it a desirable option worldwide. In addition to the US Army's substantial fleet, many countries have chosen a number of CH-47 to meet their heavy-lift needs.

OVER 300 CH-47F
 HAVE BEEN
 DELIVERED TO THE US
 ARMY SINCE 2006



An RAF pilot and co-pilot navigate their CH-47 over Wales



A Royal Air Force crew demonstrates considerable teamwork in balancing over 16 tons of Chinook on a concrete block during a handling exercise



"THE CHINOOK BECAME THE DEFINING IMAGE OF THE UK COMMITMENT IN AFGHANISTAN"

United Kingdom service

The UK's final decision to purchase CH-47s didn't come until 1978. Just over ten years earlier, in March 1967, an order was placed to replace the Bristol Belvedere, but the UK decided to cancel the contract just six months later due to extensive lobbying from UK manufacturers. The initial 33 Chinook HC-1s, based on the CH-47C version with some elements of the Canadian version, entered service in late 1980 at RAF Odiham, just in time to be used in action during the Falklands War in 1982.

Four Chinooks were sent on the British merchant ship SS Atlantic Conveyor. However, three were lost when the ship was hit by an Exocet air-to-surface missile on 25 May 1982. Luckily CH-47 ZA718 'Bravo November' was away from the ship at the time of the attack, resupplying British ships. Bravo November continued in the war as the sole available heavy lift-helicopter, surviving a night time inadvertent ditching (during which the co-pilot got as far as jettisoning his door to escape before the aircraft lifted clear) and flying way in defiance of routine maintenance protocols.

During the Falklands War, the British Army captured an Argentine CH-47 (using the door to stop BN's co-pilot getting cold) and this was brought back to the UK to be used as a training device and eventually donating its rear fuselage to repair Chinook ZA704 following a night dust landing accident in Oman.

In addition to the Falklands campaign, RAF Chinooks have also seen extensive service, including peace-keeping commitments in the Balkans, counter-terrorism in Northern Ireland and action in the Iraq and Afghanistan wars. While deployed during the Afghanistan conflict the RAF CH-47 became a valuable asset, becoming well known for its emergency response role, in which the rear of the aircraft became an emergency operating theatre.

RAF Chinook ZD574 flies the Mach (Machynilerh) loop in Wales. The Mach loop is a series of mountain valleys where pilots can hone their low-level tactical flying skills



In many ways, as the UH-1 'Huey' came to symbolise the US war in Vietnam, the Chinook became the defining image of the UK's commitment in Afghanistan.

RAF Chinooks have received extensive upgrades over their operational life and have also received dozens of capability upgrades during operations thanks to the Urgent Operational Requirement (UOR) process. Many of these fits are short term, others remain sensitive. Some persist on the aircraft and are fitted fleet-wide.

A pair of RAF CH-47 fitted with the Titan 385ES-HD Multi-Sensor Turret System operate on the vast Salisbury Plain Training Area in the UK. The Titan 385ES-HD Multi-Sensor Turret System combines high performance sensors into a single Line Replaceable Unit (LRU) solution, to meet the operational demands of today's airborne observation, surveillance and reconnaissance requirements



Spanish service

The Spanish army became the first European force to choose the CH-47C (H-17) after other heavy-lift helicopters, such as the CH-53 Sea Stallion, CH-46 Sea Knight, SA321 Super Puma (France) and Mi-8 Hook (Soviet Union/Russia) had all been considered.

A new battalion named BHELTRA V was formed at Colmenar Viejo airbase, situated northwest of Madrid. Spanish army service commenced during 1974/75.

BHELTRA V's motto is "Detras de Nadie" (behind no one) and the CH-47 operates many mission profiles, providing troop transport and moving heavy armament/equipment when tasked with supporting roles. The Spanish army CH-47 can also lift up to 10.5 tons of weight using the under-slung load capability and support special forces insertion/extraction, combat search and rescue and humanitarian tasking when requested.

Spain bought 13 CH-47Cs and designated them as HT-17s. Nine were updated to D standards and an additional six new aircraft were purchased.

Several upgrade packages have taken place since 1989, with systems installed including the Extended Range Fuel System II. This system not only allows the CH-47 to increase its flying range, it also enables the aircraft to refuel other aircraft or vehicles on the ground at a forward refuel point using the 'Fat Cow Procedure'. VHF/FM secure radio communication with PR4G radio has been introduced and Iridium phone has been



Every 23 June, the Spanish army celebrates its foundation. A formal ceremony is held with a large flypast of army helicopters to finish the event. CH-47s (H-17) from BHELTRA V form a large part of the flypast

integrated into the satellite communications system. Improved ballistic protection against 7.62mm rounds has been added. Honeywell T55-714 turbine engines with FADEC system, and a helicopter engine inlet protection with an engine air particle separator (EAPS) upgrade have also been introduced. Spain plans to upgrade the CH-47D to the F model in 2019.

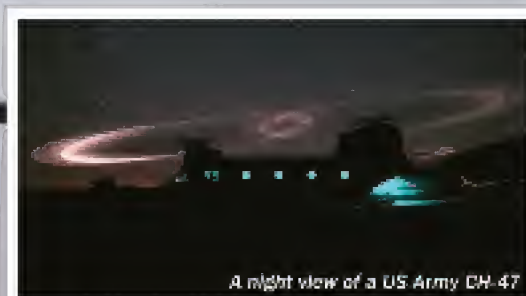


Right: The loadmaster/crewman conducts many tasks in the back cabin during a flight. As well as providing visual assistance to the pilots on the intercom, they make sure cargo and passengers are loaded safely and efficiently

Spain's rugged and mountainous terrain allows the Spanish BHELTRA V crews to train in many different scenarios. A ski-fitted CH-47 practises snow landings in the Sierra de Guadarrama mountain range



"BHELTRA V'S MOTTO IS 'DETRAS DE NADIE' (BEHIND NO ONE) AND THE CH-47 OPERATES MANY MISSION PROFILES"



A night view of a US Army CH-47



A US Army CH-47 in Botswana. CH-47s have been used extensively in multiple theatres and conditions



Single rotor helicopters require a torque regulating vertical rotor, such as a tail rotor, to counteract the yawing movement produced by the single large rotor. The Chinook's counter rotating tandem rotors eliminate this requirement, releasing most of the power for lift and thrust and avoiding other tail rotor issues. A small percentage of power is lost due to the transmission complexity and the overlapping rotors

**"QUICKER PILOT
DECISIONS AND MORE
ACCURATE HANDLING
CAN BE ACHIEVED"**

Advances in design

The most recent high-production variant of Chinook is the CH-47F. Equipped with a redesigned modernised airframe, Common Avionics Architecture System (CAAS) cockpit that improves crew situational awareness and the Digital Automatic Flight Control System (DAFCS), which offers enhanced flight-control capabilities for the multitude of conditions in which the helicopter is used, quicker pilot decisions and more accurate handling can be achieved. A reconfigured cabin can be customised with troop seats, litters or auxiliary fuel for any mission. Triple cargo hooks and a broad centre of gravity range make for flexible load lifting. Mounts for fast roping, skis, rescue hoist and three gun positions make the latest CH-47Fs highly versatile.

Right: A crewman, who is responsible for efficient and safe loading and unloading, looks out from the rear cabin



A CH-47 deploys flares, one part of a range of defensive equipment designed to protect the crew and passengers



Self-protection

The CH-47F can be equipped with up to three M240 7.62mm machine guns, with one positioned on the loading ramp and two at the side windows.

The M240B is a general-purpose machine gun. It can be mounted on a bipod, tripod, aircraft or vehicle. The M240B is a belt-fed,

air-cooled, gas-operated, fully automatic machine gun that fires from an open bolt position. This reliable 7.62mm machine gun delivers more energy to the target than the smaller calibre M-249 SAW. Many operators, such as the US 160th SOAR and the RAF, elect to boost defensive firepower further by fitting the six-barreled

Dillon Aero M134 Minigun at the port and starboard doors.

Most users have also equipped their aircraft with comprehensive Defensive Aids Suites featuring Radar Warning Receivers, Missile Warning Systems, IR countermeasures and chaff/flare dispensers, as well as ballistic protection for the crew and passengers.

ENGINE

The Honeywell T55 family of military turboshaft engines began life, as its designation indicates, in 1955. To date, more than 6,000 T55 engines have been produced, logging some 12 million hours of operation on the Boeing CH-47 Chinook and MH-47 helicopters.

At its introduction, the T55 produced 1,600 shaft horsepower (SHP). Several decades and generations

of development later, today's T55 produces 4,800 SHP and powers the CH-47 Chinook to a maximum speed of 170 knots (196 miles per hour). With proven power, reliability and durability, the latest configuration 55-L-714A delivers 22 per cent more power and uses seven per cent less fuel than its predecessor.

Right: A T55 turboshaft engine on a Japanese Air Self-Defense Force CH-47

Below: A Honeywell T55-R-712 turboshaft engine at Kawasaki Air Base, Japan



**"TODAY'S T55
PRODUCES
4,800 SHP AND
POWERS THE CH-
47 CHINOOK TO A
MAXIMUM SPEED
OF 170 KNOTS"**





A REVOLUTION IN VIETNAM

The machines, weapons and innovations of this most iconic conflict

The Second Indochina War, better known in the West as The Vietnam War, affected the lives of millions, and whole generations on both sides of the conflict were changed forever by the horrors experienced. The jungles, skies and rivers of Vietnam became just the latest battleground in the seemingly unending fight against the perceived global threat of communism. With the military might of one of the world's superpowers clashing with highly effective guerilla tactics, the war featured some of the deadliest weapons, the most effective hardware and it saw some of the most unbelievable feats of human bravery. Over 50 years after US ground operations began, we take a look at some of the machines, weapons and innovations of this devastating war.

VEHICLES

BELL UH-1 IROQUOIS

NICKNAMED THE 'HUEY', BELL'S FIRST TURBINE-POWERED HELICOPTER BECAME AN ENDURING VIETNAM WAR SYMBOL

LYCOMING TURBOSHAFT ENGINE
Most Hueys featured a 44-foot twin blade rotor.

THE NICKNAME

Bell's original model designation was 'HU-1'. Even when renamed to UH-1, the 'Huey' nickname stuck.

SERVICE IN VIETNAM

More than 18,000 Bell UH-1s were produced between 1955 and 1976, with over 7,000 of them seeing service.

NO PARATROOPERS

In Vietnam, the helicopter reigned supreme. Only one parachute drop was conducted during the entire war. The rest of the time, troops were predominantly ferried into enemy territory via helicopter. Nicknamed 'slicks' thanks to their lack of external armaments, the formations were so tight that the rotor blades of neighbouring helicopters often overlapped.

VIETNAM'S LONDON BUS

Early UH-1s featured a short fuselage with cabin space for just six troops. Later UH-1B models stretched the fuselage and could seat 15 (or house six stretchers).

SEMI-MONOCOQUE CONSTRUCTION

MEDIC!

Initially, assault helicopters were used for medical evacuations. As the war continued, some Huey crews were trained in basic medical skills, and could be summoned with the 'Dustoff' radio call sign.

THE FIRST GUNSHIPS

Without weapons, 'slick' Hueys were vulnerable. Some were fitted in the field with .30 cal machine guns or rocket pods to provide defensive fire. By 1963, the first factory-built UH-1 gunship, the UH-1C, arrived in Vietnam. Despite this, around 2,500 were lost during the conflict.

WEAPONS



9K32 STRELA-2

THE OVER-THE-SHOULDER ANTI-AIR WEAPON

With the threat of US air superiority, NVA troops relied heavily on these Soviet-gifted surface-to-air launchers. Also known as the Grail, the weapon's portability was its greatest advantage, as a user could appear and threaten low-flying aircraft seemingly out of nowhere.

WEAPONS

60MM M2 LIGHT MORTAR

RAINING DOWN FIRE FROM ABOVE

Developed during World War II, the M2 steadily replaced the less efficient M19 as the standard mortar for the US Army. Copied from the designs of French engineer Edgar William Brandt, the weapon had a range of nearly 6,000 feet, and was capable of firing high-explosive white phosphorous and illuminating projectile rounds.



WEAPONS

M60

REVERED FOR ITS FIREPOWER AND NICKNAMED 'THE PIG' FOR ITS SIZE

Mounted in choppers, on jeeps and lugged through the jungle by GIs, the M60 was the US's primary squad light machine gun. Firing a heavy 7.62mm bullet, it punched through jungle undergrowth with ease. The barrel got so hot during firing, a heat-proof asbestos glove was issued for barrel changes.



WEAPONS

FLAMETHROWERS

THE GO-TO WEAPON FOR BURNING OUT BUNKERS AND BUSH

Used for everything from burning brush around firebases and landing zones, to destroying Vietnamese bunkers, flamethrowers were most commonly found mounted on special tanks and riverboats nicknamed 'Zippos'. Man-portable flamethrowers were rarely used, because the heavy tanks held only enough fuel for just nine seconds of burn time.

VEHICLES

M520 GOER

AN AMPHIBIOUS 4X4 THAT COULD GO ANYWHERE, HELPING TO SUPPLY US TROOPS IN SOUTH VIETNAM

The Caterpillar-built prototype M520 GOERs were pressed into active service in 1966, where they quickly became the most popular resupplying vehicle. The M520 had no suspension, instead relying on tyres for springing. What's more, the seams between the GOER's external steel frame and sides were watertight, making it amphibious. Despite its success, it wasn't until 1972 that a production order was placed, seeing 812 sent to Vietnam.



WEAPONS

105MM M101A1 HOWITZER

FIRE SUPPORT DROPPED INTO PLACE BY HELICOPTER

The 2.2 ton, 105mm M101 Howitzer first entered service in 1941 as the M2A2, seeing action throughout WWII and Korea before it became a mainstay of US firebases in Vietnam.



US ARMY GI

M1 HELMET

This headgear was the standard issue in the US Army since WWII.

WEAPONS

M16

LIGHTWEIGHT RIFLE IDEAL FOR JUNGLE COMBAT

Army replaced the heavy M14 with a space-age lightweight rifle. Troops mocked its plastic stock and unorthodox shape, calling it the 'Mattel toy rifle'. Soon after reaching Vietnam, the M16 began suffering catastrophic jams caused by ammunition problems, made worse by troops being told that the rifle was self-cleaning. GI confidence in the rifle was destroyed by horrifying reports of men killed while disassembling their weapons to clear jams. Despite this, its light weight and high rate of fire made the M16 ideal for jungle fighting. Proper cleaning and some design changes eventually made the M16 the soldier's best friend.

BODY ARMOUR

These sturdy zip-up flak vests commonly came with ammunition pouches and grenade hangers.

UTILITY TROUSERS

Olive-green lower garments came with two patch and two hip pockets and were made to endure all weathers and heavy wear.

JUNGLE BOOTS

Before the introduction of sturdier jungle boots, flimsier footwear rotted quickly in the unforgiving conditions.

WEAPONS

AK47 RIFLE

THE INSURGENT'S ICONIC WEAPON OF CHOICE

Designed by Mikhail Kalashnikov in the late 1940s, the AK47 reached Vietnam in 1967, with Russia and China sending hundreds of thousands of rifles. The most common was China's copy of the AK, the Type 56. While the gun was less accurate and heavier than the M16, its simple, rugged design meant it was easy to shoot and maintain even after being dragged through the jungle or a muddy rice paddy. Unlike the M16, the AK's heavier 7.62x39mm bullet was able to penetrate dense jungle and even trees. The Vietnam War helped make the AK47 the world's most recognisable rifle.

SMOKE GRENADE

Coloured smoke grenades were frequently used to mark landing zones and casualty pickup points.



VEHICLES

SOVIET MIG-17 VS USAF F-4 PHANTOM II

SOVIET AND AMERICAN AERONAUTIC TECHNOLOGY CLASHED IN THE BATTLE FOR VIETNAMESE AIR SUPERIORITY

Despite US Air Force pilots being engaged in aerial combat almost continuously since the end of World War II, USAF could only manage a 2:1 kill ratio against the NVAF's MIG-17 and MIG-21 fleet.

The MIG-17 was the tightest turning jet fighter of its day. Despite its thin delta wings, it could sustain turns of up to 8G. While the US began developing air-to-air missile systems for its fighter planes, the MIG's twin cannon system made it

a better bet in close aerial dogfights, accounting for 26 US aircraft from 1965-72.

At the time, The F-4 Phantom II was the West's most prolific fighter craft. Serving under the US Navy, Air Force and Marine Corps, the jet had already set speed and altitude records by the outbreak of the war. A highly versatile plane, it was capable of participating in intercept and reconnaissance

missions. The F-4G 'Wild Weasel' variant was developed by the US Air Force to find and destroy enemy radar using air-to-surface missiles, which proved highly effective against NVA installations.



NAVY SEAL WEAPONS CARL GUSTAV M/45

THE LEGENDARY 'SWEDISH-K' FAVOURED BY
US SPECIAL FORCES

Developed by neutral Sweden during WWII, the rugged M/45 became extremely popular with CIA operators and US Navy SEALs in Vietnam. The 1966 Swedish arms embargo ended export of the M/45 to the US. This led Smith & Wesson to produce the M76, a direct copy of the 'Swedish-K'.

KA-BAR

THE UTILITARIAN COMBAT KNIFE CARRIED
BY THOUSANDS OF US SERVICEMEN

Hanging from the belt of most US servicemen in Vietnam, the Ka-Bar, first adopted in 1942, was invaluable. It was used for everything from probing for mines to opening C-rations.

S&W MODEL 39

FAST-FIRING 9MM FAVOURITE

Smith & Wesson's first modern automatic pistol was used by the Navy SEALs during covert missions, a model adapted with a sound suppressor was nicknamed the 'Hush Puppy'.



VEHICLES

M67A2 FLAME THROWER TANK

SENDING SCORCHING NAPALM ACROSS THE VIETNAMESE COUNTRYSIDE WAS THE JOB OF THIS US MARINE TANK

Based on the hull of the M48 Patton tank, the M67 flame-throwing tank did away with the usual gun, instead utilising an M7 fuel and pressure unit, along with an M6 flame gun (the latter of which was hidden inside a dummy 90mm turret in order to prevent the Flame Thrower Tanks from being singled out by enemy fire).

Favoured by the US Marine Corps, the M67 tanks were nicknamed 'Zippos' after the famous manufacturer of cigarette lighters. However, unlike their everyday namesake, there was no novelty about the flame-throwing tanks, spewing out napalm over Viet Cong territory. Alongside the M132 armored flamethrower, the Marines were provided with a fearsome offensive weapon that caused much destruction to the rebel Vietnamese forces.



YEAR PRODUCED: 1965
ENGINE: 643hp 29.36-litre V12 supercharged diesel
WEAPONS: M7-6 flame thrower, .50 cal machine gun, .30 cal machine gun
Crew: 3
ARMOUR: 1"-4.33" cast steel on hull, 1"-7" cast steel on turret
SPEED: 30mph sustained
Weight: 47,500kg

WEAPONS

NAPALM

ALMOST 400,000 TONS OF NAPALM WERE DROPPED DURING THE WAR

Developed during WWII, Napalm was first used in Vietnam by the French. A mix of petrol and thickening gel, Napalm burns at 1,000°C and can cover up to 2,000m² when dropped from the air. News reports of Vietnamese civilians accidentally hit by napalm during air attacks horrified the US public.



WEAPONS

AGENT ORANGE

THE HORRIFIC CONSEQUENCES OF THE DANGEROUS DEFOLIANT

Over 75,000,000 litres of the acidic herbicide were sprayed from planes and helicopters, devastating vast swathes of Vietnamese jungle in an effort to destroy the Viet Cong's dense jungle cover. The side effects of Agent Orange led to hideous deformities and illnesses among those who came into contact with it.





STRUCTURES

THE CU CHI TUNNELS

THE VIET CONG CONSTRUCTED HUGE TUNNEL NETWORKS TO STRIKE INFANTRY FROM BELOW

AMERICAN ADVANCE

US Infantry and tank divisions would advance through the jungle, unaware of the subterranean bases under their very feet.

TRAPS

Holes filled with grenades or spikes would be well concealed until an unsuspecting GI stumbled across one.

CARPET BOMBING

To flush the Viet Cong out, the US forces resorted to mass bombing operations. They were only moderately successful.

TUNNEL RATS

The US troops ventured underground with grenades and tear gas, but were met with more traps and fierce Viet Cong resistance.

PLANNING CHAMBER

The facilities underground were expansive enough to house conference rooms.

STOREHOUSE

The Viet Cong could stay concealed for days, and stockpiled supplies so they could eat, sleep and drink under the ground.

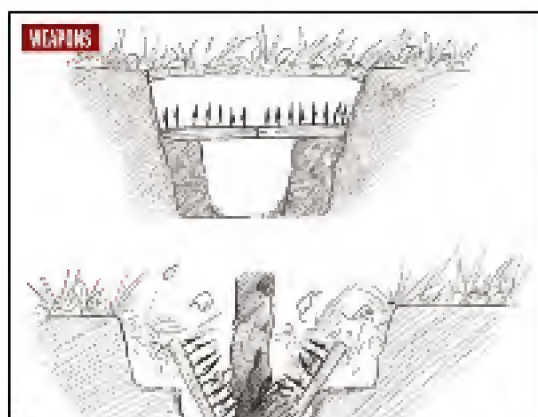
COMPLEX TUNNEL NETWORK

Between the larger rooms the tunnels were narrow, and only one man could fit through at a time.

DORMITORY

While battles were raging above, Viet Cong troops could sleep deep in the subterranean tunnels.





PANJI TRAP

Hidden inside camouflaged holes, these traps were ideal for catching unsuspecting US GIs off guard. These hidden jungle threats could slow a march down to a sluggish pace, as they were almost impossible to locate. If you were unlucky enough to get caught in one, a bamboo spike or nail plunging through your foot would make you instantly combat ineffective.



MACE TRAP

What the US had in firepower the Viet Cong made up for with ingenuity. The mace trap was a simple three metre (ten-foot) log studded with sharp bamboo spikes. It would be triggered by a concealed trip wire on the forest floor, and was used in a similar role to the Panji trap. These mace traps were silent, but could maim and even kill once activated.



GRENADE TRAP

Less widespread than other traps due to the availability of explosives, this was nonetheless an effective trap. The grenade could be hidden in water, under foliage or up in the treetops. Once again using the element of surprise, a small tug on the tripwire would dislodge the safety pin and incapacitate a group of enemy soldiers in one blast.

VEHICLES

BICYCLE

THE VIET CONG MOVED SUPPLIES VIA PEDAL POWER

In stark contrast to the technological might of the United States, one of the key vehicles for the North Vietnamese troops was the humble bicycle.

Capable of carrying up to 180 kilograms of supplies, the Viet Cong used their bikes to transport rice, guns and other goods. They proved especially useful in ferrying items along the Ho Chi Minh Trail, and were an integral part of the Tet

Offensive. Fully laden, the bicycles were impossible to ride. Instead, they were pushed at pedestrian pace. However, being easy to repair and simple to camouflage, they were rarely hit by US attacks. Harrison Salisbury, a New York Times reporter who had spent time in Hanoi, remarked: "I literally believe that without bikes they'd have to get out of the war."





VEHICLES

NORTH AMERICAN ROCKWELL OV-10 BRONCO

AN UNUSUAL WARBIRD DESIGNED TO DO IT ALL IN THE SKIES ABOVE VIETNAM

A large cockpit, seating pilot and co-pilot in tandem, with wings mounted atop the fuselage and twin booms with interconnecting stabiliser, North American Rockwell's OV-10 Bronco certainly cut a distinctive shape in the air.

Designed and tested in the early 1960s with the counter-insurgency combat of Vietnam in mind, the OV-10 was capable of short take-offs and landings, ideal for use from larger amphibious assault ships or from unprepared airfields. It could also be started without ground equipment



YEAR PRODUCED: 1965
ENGINE: 2 x 715hp Garrett T76 turboprops
WEAPONS: 4 x 7.62mm machine guns
CREW: 2
SPEED: 281mph max.
WEIGHT: 3,125kg unladen

and, if needed, run on automotive petrol with little loss of performance.

Capable of carrying 1,450 kilograms of cargo (from five paratroopers to a Viet Cong-busting supply of bombs), the OV-10 was a versatile machine after its introduction into Vietnam in 1969, most at home during forward air control

and reconnaissance missions. However, despite aiding in numerous air strikes, the Bronco wasn't without its problems. 81 OV-10 Broncos were lost in Vietnam, with a low top speed making it an easy target for enemy fighters, and its slow climb rate causing some US pilots to crash into the hilly terrain.

DESIGNED IN A HOTEL

Boeing Chief Engineer Ed Well and his team had to redesign the B-52's design during a weekend in an Ohio hotel when the US Air Force asked them to scrap the previous propeller-engine design.

EXTERNAL PAYLOAD

Project South Bay enhanced the B-52F's external payload capacity in 1964.

DROP TANKS

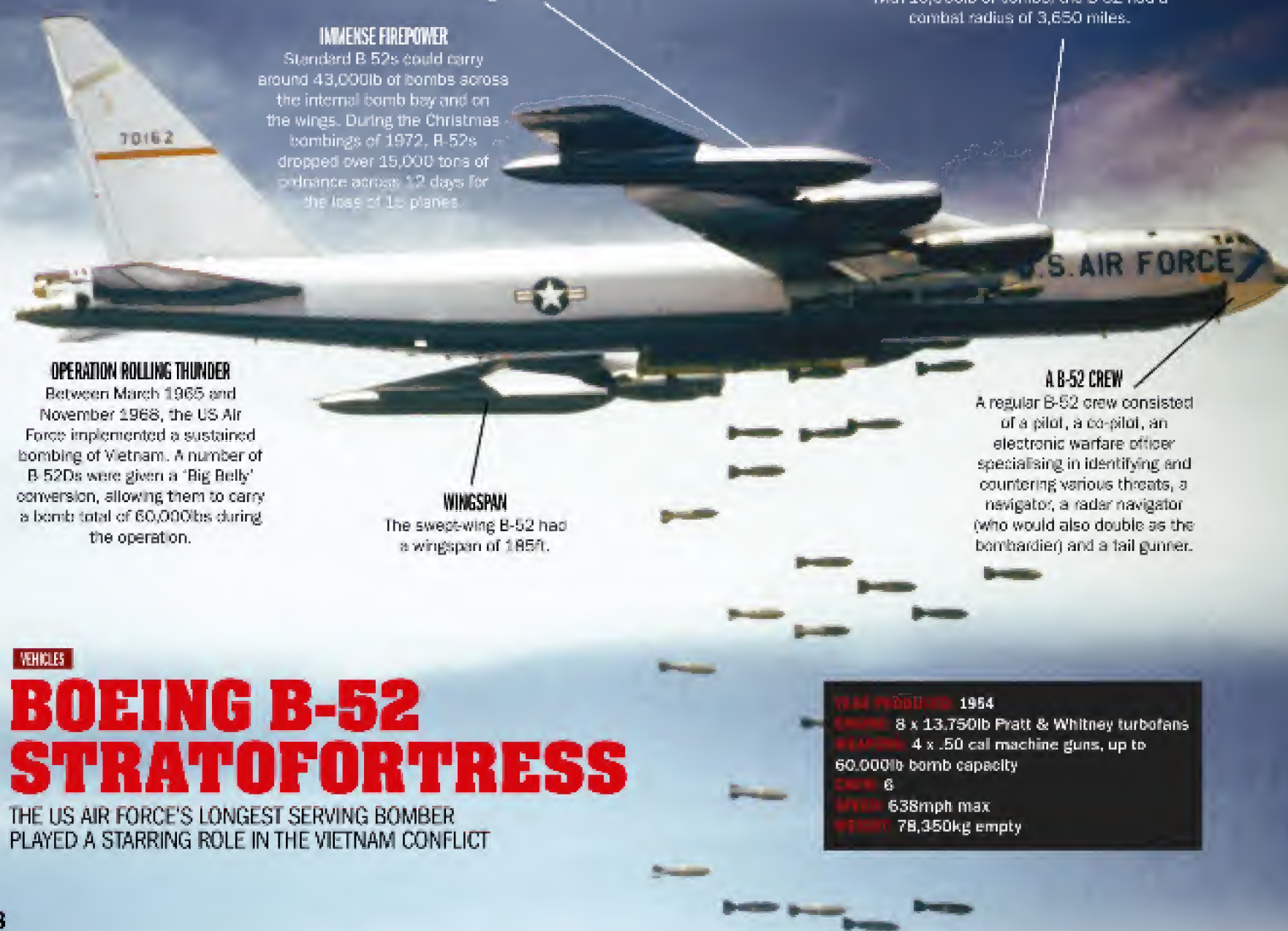
External fuel tanks increased capacity by up to 1,000 US gallons.

IMMENSE FIREPOWER

Standard B-52s could carry around 43,000lb of bombs across the internal bomb bay and on the wings. During the Christmas bombings of 1972, B-52s dropped over 15,000 tons of ordnance across 12 days for the loss of 16 planes.

EIGHT JET ENGINES

While it looks as if the B-52 only has four engines, each cluster – suspended below the wings – contains two Pratt & Whitney turbofans. With 10,000lb of bombs, the B-52 had a combat radius of 3,650 miles.



OPERATION ROLLING THUNDER

Between March 1965 and November 1968, the US Air Force implemented a sustained bombing of Vietnam. A number of B-52Ds were given a 'Big Belly' conversion, allowing them to carry a bomb total of 60,000lbs during the operation.

WINGSPAN

The swept-wing B-52 had a wingspan of 185ft.

A B-52 CREW

A regular B-52 crew consisted of a pilot, a co-pilot, an electronic warfare officer specialising in identifying and countering various threats, a navigator, a radar navigator (who would also double as the bombardier) and a tail gunner.

YEAR PRODUCED: 1954
ENGINE: 8 x 13,750lb Pratt & Whitney turbofans
WEAPONS: 4 x .50 cal machine guns, up to 60,000lb bomb capacity
CREW: 6
SPEED: 638mph max
WEIGHT: 78,350kg empty

VEHICLES

BOEING B-52 STRATOFORTRESS

THE US AIR FORCE'S LONGEST SERVING BOMBER PLAYED A STARRING ROLE IN THE VIETNAM CONFLICT



VEHICLES

ATC 'MONITOR' BOAT

PATROLLING THE RIVERS WAS ENTRUSTED TO CONVERTED LANDING CRAFT

Inspired by its French counterparts' actions during the First Indochina War, the US Navy and Army formed the Mobile Riverine Force to combat Viet Cong forces in the Mekong Delta, predominantly using Armoured Troop Carriers (ATCs) to ferry up to 40 soldiers and launch river-based assaults in water five feet or deeper.

The ATCs were based on the Fifties LCM-6 landing craft design, using quarter-inch hardened steel armour plating to protect the superstructure and a distinctive bow ramp used for deploying troops and loading supplies. In 61-foot 'Monitor' form, the ATC boat was transformed into a floating artillery platform, adding either a 81mm mortar or a 105mm Howitzer to the usual ATC armaments.

One of the finest moments for the ATCs in Vietnam was during Operation Game Warden on 18 December 1965. Intending to prevent the Viet Cong from accessing the vital supplies along the Mekong Delta, US forces launched a rapid surprise attack at a number of small enemy ports, destroying much of the Viet Cong fleet.

VEHICLES

WILLYS M38A1 JEEP

AN ICON OF WWII, THE WILLYS JEEP'S MILITARY SERVICE CARRIED THROUGH THE VIETNAM CONFLICT TOO

After the success of the Willys MB Jeep in World War II, the US firm developed the M38 Jeep for use by the US Marine Corps, where it was once again put into a multitude of roles during the Vietnam War.

Often seen patrolling around Saigon, the Jeep was a cheap and reliable means of transporting small numbers of troops and goods over multiple terrains. From carrying dignitaries (such as President Lyndon B Johnson during his various visits) to providing cover during urban warfare, the M38A1 Jeep – featuring revised suspension, a stronger chassis and rounded wings – more than proved its worth with over 80,000 units produced for US forces use between 1952 and 1957.

However, the etymology of 'Jeep' is still debated, with some believing it to be a form of 'GP' (General Purpose Vehicle) and others feeling it influenced by Eugene the Jeep, a jungle dwelling character in the Popeye comics.

YEAR PRODUCED: 1952

ENGINE: 75hp 2.2-litre

Inline-4 petrol engine

WEAPONS: None

CREW: 1

ARMOUR: None

SPEED: Unknown

WEIGHT: 1,200kg



WEAPONS

M18 CLAYMORE MINE

'FRONT TOWARD ENEMY' – AMERICA'S LETHAL ANTI-PERSONNEL MINE

Ideal for ambushes and anti-infiltration defence, the Claymore, named after the famous Scottish broadsword, was a lethal anti-personnel mine developed in the Fifties. A block of plastic explosive inside the curved casing blasted 700 steel ball bearings into a 100m kill zone, killing or maiming everything in range.



WEAPONS

RPD

THE VERSATILE RUSSIAN LIGHT MACHINE GUN FAVOURED BY THE VC

Firing the same round as the AK47 the RPD fed from a formidable 100-round drum. Its fixed barrel meant it had to be fired in short bursts to avoid over-heating, but it was lighter than the bulky M60, making it the ideal light machine gun for Viet Cong insurgents.



Images: The Art Agency, Corbis, Ed Crooks, Alex Pang

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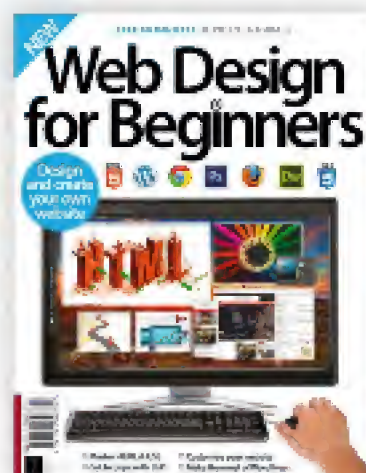


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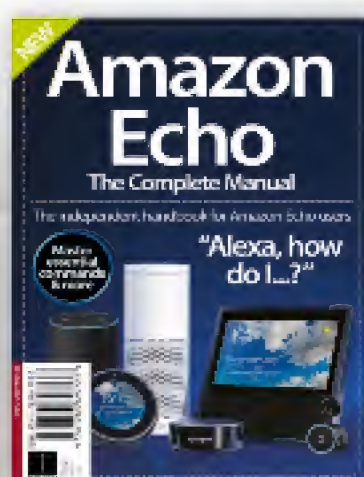


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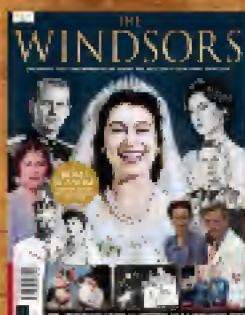
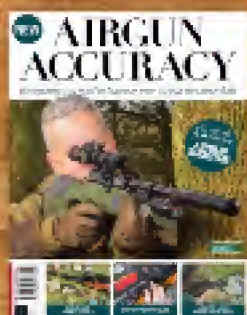
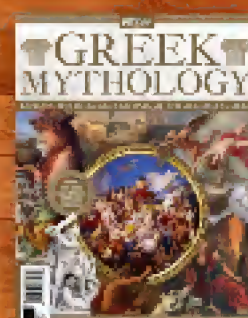
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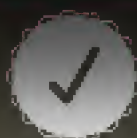
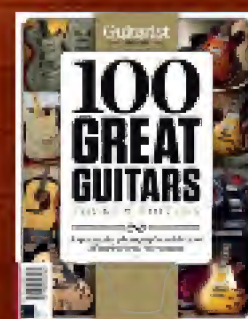
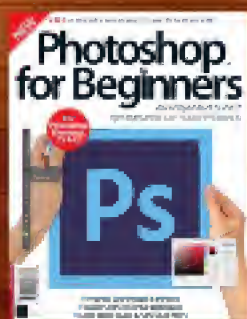
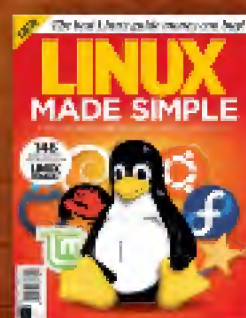
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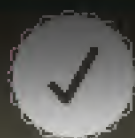


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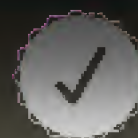
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